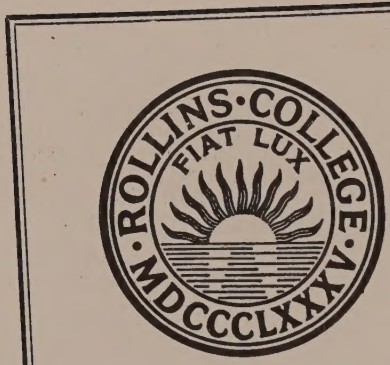
DIAGNOSTIC AND REMEDIAL TEACHING

Glenn Myers Blair



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DIAGNOSTIC AND REMEDIAL TEACHING

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A GUIDE TO PRACTICE IN ELEMENTARY AND SECONDARY SCHOOLS

Glenn Myers Blair, Ph.D.

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Preface

Teachers at both the elementary- and secondary-school levels often find pupils in their classes who are severely retarded in the basic tools of learning. There are those who may be nonreaders. Others are found who have great difficulty with spelling, arithmetic, handwriting, and English usage. Such pupils are not only handicapped when called upon to use these fundamental tools in their schoolwork, but are also very much at a disadvantage in successfully meeting many out-of-school situations.

The number of pupils needing special diagnosis and help has become so great that many elementary, junior, and senior high schools have felt the need for setting up remedial programs. In general, however, the training of teachers has not been of the type to assist them in carrying out such programs. Some of them are unacquainted with the basic techniques of psychological diagnosis and also lack specific knowledge of ways and means of remedying various disabilities even when the causes have been uncovered. Large numbers of teachers at the secondary-school level, for example, have very slight knowledge of how to go about teaching a child to read. This is partly due to the fact that in former times it was supposed that this and similar duties should be borne by teachers in the elementary schools. These newer problems place added responsibilities upon teachers in our junior and senior high schools as well as upon administrators who must take the initiative in organizing adequate programs. Teachers in the upper grades of the elementary school also need special assistance in diagnosing and alleviating learning problems of the children under their care.

There are some educators who may still feel that the fundamental

processes should be thoroughly mastered by all pupils before they enter the secondary school. It is doubtful that such a goal can ever be entirely realized. There will probably always be individuals who fail for one reason or another to profit as they should from their initial instruction. Individual differences in learning ability preclude the possibility of all individuals achieving mastery of a set of skills at a specified time. Furthermore, some of the basic tools of learning such as reading are very complex and should normally receive attention in secondary and higher schools if a satisfactory level of proficiency is to be reached.

This book has been written in an effort to supply teachers, principals, supervisors, and superintendents with concrete and practical suggestions for carrying out remedial programs in their schools. It is a guide which should be particularly useful to teachers in service at the elementary and secondary school levels who need specialized instruction in dealing with children with disabilities in the fundamental processes of learning. The book has also been designed for use as a basic text in courses in diagnostic and remedial teaching which are offered in teacher-training institutions.

Part 1 deals with the problem of improving reading; Part 2 is concerned with remedial work in the areas of arithmetic, spelling, handwriting, and English fundamentals; and Part 3 is devoted to such general matters as how to make a case study and how to prepare for remedial teaching.

The materials for this book have been gathered from many sources. One of the chief of these has been a nation-wide survey of remedial teaching which the writer conducted. Other valuable ideas and suggestions have been gained from working with teachers on problems of remedial teaching in school systems located in various parts of the United States. Much has also been gained from the clinical study of pupils who have been brought to the University of Illinois for diagnosis and treatment.

The author is indebted to his former teachers, August Dvorak and Arthur I. Gates, for the development of his thinking in the areas which comprise the subject matter of this volume. The writer's colleagues

at the University of Illinois, E. W. Dolch and Algard P. Whitney, have provided stimulating ideas and materials which have found their way into this book. The students in the writer's classes in diagnostic and remedial teaching have also contributed many helpful suggestions. The pictures of remedial activities which appear in this book were largely provided by Mrs. Alice Townsend Barlow, Director of School-Community Relations, Champaign, Illinois, schools, and Mr. William Kottmeyer, Assistant Superintendent of the St. Louis, Missouri, schools. Photographs of the Ophthalmograph and the Telebinocular were supplied by the American Optical Company and the Keystone View Company, respectively. To these, as well as to the many publishers who have granted permission to quote from their publications, the author expresses his sincere gratitude.

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PART 1

REMEDIAL TEACHING OF READING

Chapter 1

Introduction

The Reading Problem in the Schools

Every teacher in our elementary and secondary school classes has at times had experiences with pupils who have serious difficulties in learning how to read. This is a very normal situation, but one which requires utmost skill on the part of the teacher who would help such individuals acquire confidence and ability to make progress in this most important aspect of learning. Remedial teaching is an integral part of all good teaching. It is an activity that should begin early in the elementary school, and should be continued through the upper grades and high school and on into college. That remedial teaching should begin early can be seen from the following quotation from Dolch who discusses the problem of remedial reading in the primary grades.

> No matter how well the first grade teacher manages, there will be a few very poor readers passed on to Grade II. This is natural, and is not necessarily a reflection on the promotion system or on the first grade teaching. It is impossible and often undesirable to retain in Grade I all those who do not keep up with the group in reading ability. And it is impossible for the first grade teacher to catch and to correct all the difficulties we have just discussed as found during first grade reading. Thus, the second grade teacher expects to receive some poor readers.[1]

The third-grade teacher, the fifth-grade teacher, and the teacher of social studies in the senior high school to mention only three addi-

[1] E. W. Dolch, *Teaching Primary Reading*, Second Edition, Champaign, Illinois, The Garrard Press, 1950, p. 409.

tional levels of instruction will also normally have their quota of poor readers with which they must cope.

Extent of Reading Disability in the Upper Grades and High School

Evidence can be gathered from a variety of sources to show in a very striking manner that a high percentage of the pupils in our upper grades and secondary schools possess very immature reading abilities. Gray has said, "Records of the achievement of pupils show that from 20 to 30 per cent of the pupils who enter either the junior or senior high school read so poorly that they can engage in required reading activities only with great difficulty. Indeed, some of them are so much retarded in reading that it is impossible for them to read the books ordinarily used at their respective grade levels."[2]

Other evidence includes the reports of teachers and even the reports of pupils themselves. The following statement of a teacher is a typical one: "Time after time we find pupils in high schools floundering around helplessly only because they have been pushed on and on, finally arriving at the ninth or tenth grade with a reading ability of barely fourth or fifth grade levels."[3] An Indiana high-school teacher brings out the same point in a letter to the author. She says, "If you have any special techniques to recommend for teaching a freshman to read, I should be grateful. We have a case of a 9B pupil who has entered school with the reading ability of a 1A child. He takes no English at present. I find that he has no conception of phonics, but is making rather satisfactory progress and really wants to learn to read." A sixth-grade teacher is worried about her problem pupil, George. She says:

[2] W. S. Gray, "The Language Arts—Reading," *Implications of Research for the Classroom Teacher,* Joint Yearbook of the American Educational Research Association and the Department of Classroom Teachers, Washington, D.C., National Education Association, 1939, p. 138.

[3] Herbert B. Davis, "Wake Up and Read," *Bulletin of the Illinois Association of Teachers of English,* Vol. 26, March, 1938, p. 7.

George is twelve years old. He can do his arithmetic problems as well as any member of the class. During oral discussions he can grasp the subject under discussion so well that if I give him his tests orally, he will receive better than average grades. His problem is that he cannot read anything above the pre-primer level. I am not really sure that he can read the pre-primers for it might be merely a case of memorization. George's parents and I are eager to remedy the difficulty as soon as possible. Can you recommend someone to whom we can take George?[4]

That many pupils themselves recognize the seriousness of their disability in reading is clearly shown in a recent questionnaire study made of Springfield, Illinois, High School graduates. When asked for a frank evaluation of the high-school course they had pursued, the suggestion was frequently made that "more training in how to read" should have been included in the school curriculum.[5]

TABLE I

Reading Levels Attained by 518 Eighth-Grade Pupils on the California Reading Test

READING GRADE	NUMBER OF PUPILS
4	1
5	10
6	21
7	57
8	104
9	154
10	148
11	16
12	7
	N = 518

Perhaps the most objective and convincing evidence of the seriousness of the reading problem in the upper grades and high school is to be found in the statistical studies of reading tests given to large groups of pupils. The findings generally show that in the typical classroom there are some children who read three or four times as well as

[4] Letter to the writer, October 24, 1954.

[5] *The High School Quarterly,* Springfield, Illinois, High School, November 28, 1941.

others. This is true with respect to both speed and comprehension of reading.

Table I illustrates the wide range of ability in reading that is often found at a given grade level. In the spring of 1954, 518 pupils who were just finishing the eighth grade in a large and wealthy Illinois school system were given the California Reading Test (Intermediate Form). It can be seen from a glance at the table that one of these eighth-graders reads no better than the average fourth-grade child in the United States, while seven pupils in the same class were reading with twelfth-grade proficiency. Thirty-two of these pupils made reading scores which placed them at the sixth-grade level or lower.

In another Illinois city at the beginning of the school year, 129 junior-high-school pupils (seventh grade) were administered the reading section of the *Stanford Achievement Test*—Advanced Battery. Of this number, 37 were retarded more than one year in reading ability—that is, made reading grades below 6.0. These individuals were selected for special remedial work in reading. Table II presents the distribution of the reading abilities of this group of pupils.

TABLE II

Reading Abilities of Thirty-seven Junior-High-School Pupils Selected for Special Remedial Work

READING GRADE	NUMBER OF PUPILS
3.0–3.9	3
4.0–4.9	15
5.0–5.9	19
	N = 37

In still another Illinois community[6] the entire tenth-grade class consisting of 565 pupils was administered the *Iowa Silent Reading Test*—Advanced. Table III shows that these tenth-graders ranged in reading abilities all the way from the fourth grade to the sixteenth grade.

[6] Ray H. Simpson, *Improving Teaching-Learning Processes*, New York, Longmans, Green and Company, 1953, p. 289.

The three examples of reading spread and retardation which have just been cited were taken from Illinois schools. This condition, however, is by no means confined to any particular section of the country, but can be found in practically every school system in the United States.

TABLE III

How 565 Illinois Tenth-graders Rated on the Iowa Silent Reading Test

READING GRADE	NUMBER OF PUPILS
4	6
5	28
6	28
7	73
8	79
9	73
10	79
11	56
12	40
13	46
14	28
15	17
16	12
	N = 565

When 950 ninth-grade pupils at the Theodore Roosevelt High School in New York City were tested it was found that 105 possessed reading abilities ranging from the third to fifth grade levels.[7] In St. Louis, Missouri, when 7380 eighth-grade graduates were given the *Traxler Silent Reading Test,* it was found that 2169 (29 per cent) read at or below the norms established for the sixth grade.[8] In a North Carolina town the reading abilities of the seventh-graders extended from the third to the twelfth grade.[9]

Some schools seem to have more than their quota of poor readers.

[7] Stella S. Center and Gladys L. Persons, *Teaching High School Students to Read,* New York, D. Appleton-Century Company, Inc., 1937, p. 5.

[8] William Kottmeyer, "Improving Reading Instruction in the St. Louis Schools," *Elementary School Journal,* Vol. 45, September, 1944, pp. 33–38.

[9] J. T. Hunt, "What High School Teachers Should Know about Individual Differences in Reading," *The School Review,* Vol. 60, October, 1952, pp. 417–423.

Let us look at the situation at South Side High School, Newark, New Jersey. "Of the 247 entering freshmen who were tested in September, 1952, over 50 per cent were reading at or below the sixth-grade level. Seventeen and four-tenths per cent of these pupils tested at the sixth-grade level, 18 per cent at the fifth, 8.9 per cent at the fourth, 5.2 per cent at the third, and 1.6 at the second. Only 20 per cent of those tested were at or above the ninth-grade level. Incoming freshmen at the mid-year in February, 1953, indicated a similar range of reading abilities, with 50 per cent again at or below the sixth-grade level and with a little less than 20 per cent at or above the ninth."[10]

There is no question that the teachers and administrators in our schools realize that there is a reading problem with which they must deal. Following are a few direct quotations taken from letters which the writer has received from teachers and principals:

"We recognize this (reading) as being one of our No. 1 problems."

"We are beginning our approach to definite work in this field now. Our teaching group is doing much reading in preparation for attack on this problem."

"We do not have remedial reading classes, although we hope to establish them next year."

"We are seriously considering the introduction of a course in reading."

"We have no specific remedial program worthy of the name, but we have been working on committees this year to plan a satisfactory program for the future."

"We shall have a class in corrective reading in our Senior High School next fall."

Results of Remedial Programs

Reading is a skill and as such is susceptible to training and improvement like any other skill. No matter how poorly a boy or girl may at first play tennis, marked improvement is shown with practice and expert coaching. The initially poor bowler, likewise, after

[10] Vivian Zinkin, "A Staggering Reading Problem," *The Clearing House*, Vol. 28, November, 1953, pp. 133–137. Copyright by *The Clearing House*, 1953; used by permission.

many hours of practice improves his game to the point where strikes and spares are thrown with regularity and where gutter balls are a rarity. An earnest desire to improve one's reading ability followed by a generous amount of the right kind of practice generally results in a surprising increase in ability to read. Some cases are more stubborn than others and often require careful diagnosis before the appropriate remedial work can be begun. But once the particular difficulty or difficulties have been located and the remedial work has been started, it is a rare case which does not respond in a very satisfactory manner.

Evidence of the efficacy of remedial reading programs is amply documented in reports that have appeared in the educational literature. In Brooklyn, New York, a group of third-graders who were reading at the 1.1 level were given special tutoring in small classes. After eight months, the group showed a 14-months improvement in average reading ability. The greatest gain made by any one pupil was 31 months.[11] In the New York City high schools 2202 pupils who were given remedial instruction in reading gained on the average 13 months in proficiency during a four-month period.[12]

In another experiment,[13] 21 very retarded readers from the entering ninth-grade class at the Evanston, Illinois, High School were placed in a remedial reading class for slow learners. They were first tested with the *Gates Silent Reading Tests* (Types A, B, C, D). At the first testing the median reading grade level was found to be 5.8. After thirteen weeks of remedial instruction the group was again tested with comparable forms of the Gates tests. This time the median reading grade on the four types of material was 7.5.

In addition to studies which have shown reading gains made by pupils as the result of group remedial instruction, numerous case studies have indicated clearly the possibility of bringing about im-

[11] B. S. Slesinger, "Attacking the Problem of the Retarded Reader," *Elementary English,* Vol. 31, March, 1954, pp. 144–145.

[12] *Report on Remedial Reading,* New York City High Schools (mimeographed), Board of Education of the city of New York, March 7, 1938.

[13] Paul Witty and David Kopel, *Reading and the Educative Process,* Boston, Ginn and Company, 1939, pp. 128–135.

provement in the reading proficiency of severely retarded pupils. Marion Monroe reports the case of a girl named Charlotte who at the age of 13 years and seven months was given a number of reading tests. In September, when the tests were first administered, she made an average reading grade score of 3.6. During the ensuing nine months she was given careful individual instruction by a teacher trained in remedial methods. When retests were administered in June, Charlotte's average reading grade was found to be 7.6. She had gained four years in reading ability in the short span of nine months. This gain on the reading tests was not the only gain made by Charlotte, for, according to Monroe, her whole attitude toward life was changed as a result of being able to read successfully.[14]

Elaine, a high-school girl, 17 years and six months of age, was brought to the Educational Clinic at the University of Illinois. On Form I of the *Gates Reading Survey Test for Grades 3 to 10* she made an average grade score of 4.3. She was then tutored by one of the writer's graduate students who was specializing in remedial teaching. After 28 one-hour lessons, she was given Form 2 of the originally administered reading test. The results showed that she had made a gain of one year and four months in vocabulary, two years and one month in comprehension, and one year and four months in speed of reading, her average gain being one and one-half years. Her attitude toward reading was also rapidly changing from dislike to genuine interest.

Many other case studies and experiments could be cited to show the direct relationship which exists between remedial instruction and increased skill in reading. Wherever a deliberate and well-planned attempt has been made to improve the reading abilities of pupils, definite and permanent results have been obtained. The extent of the improvement has been determined largely by the adequacy and appropriateness of the remedial techniques which have been employed.

[14] Marion Monroe, *Children Who Cannot Read,* Chicago, University of Chicago Press, 1932, pp. 167–170.

Effect of Reading Retardation upon Personality Development

Failure experiences of any kind frequently leave severe marks on a child's personality. A fundamental need of every individual is the need for achievement, and when this is rendered impossible in a given area such as reading, various forms of personality maladjustment are likely to make their appearance. The pupil who has failed to make adequate progress in reading is apt to adopt certain types of escape mechanisms in order to gain the recognition he desires and to make the situation tolerable for himself. He may *compensate* for his feelings of inferiority by displaying bullying or blustering behavior, or by developing special ability in some other activity. Or it is possible that he may resort to *day-dreaming* as a means of gaining the satisfactions he desires. It is a certainty that he will not look to reading with any sense of enjoyment. Pupils who have failed miserably in developing normal reading proficiency invariably hate books and other types of reading materials.

Mandel Sherman has clearly pointed out the effect of continued failure in reading upon the production of frustration and maladjustment in pupils. He says,

> A child may react with a deep sense of failure, not only because he realizes his inability to develop adequate reading efficiency, but also because he constantly has to face various social pressures. He must deal with the attitudes of his parents, who are frequently greatly disappointed at his inability to learn, as well as those of his fellow-pupils. He must deal also with the attitudes of teachers, many of whom do not understand the differences between an inherent reading disability and an unwillingness to learn. The child with a reading disability must also deal with the reaction of his playmates, who certainly do not understand the complexity of a reading problem and who frequently tend to categorize the pupil with a reading disability as "dumb" or backward or peculiar. Thus it is not unnatural that frustration and its consequences play an important role in the case of children who have reading difficulties.[15]

[15] Mandel Sherman, "Emotional Disturbances and Reading Disability," *Recent Trends in Reading,* Chicago, The University of Chicago, 1939, p. 130.

There is considerable evidence available that failure in reading may frequently be a contributing cause of juvenile delinquency and all sorts of antisocial behavior.[16] In this connection, Mr. George H. Chatfield, Director of the Bureau of Attendance of the New York City Board of Education, states that "no small portion of delinquency and social and emotional maladjustment may be traced to frustration originally caused by difficulty or failure in the early stages of reading."[17]

It is not only likely that reading retardation tends to cause emotional and personality disorders, but it is also probable that these emotional and personality maladjustments then act to further block progress in learning to read.[18] Thus a vicious circle is set up. It is this circle which remedial work in reading must break up. By giving the retarded reader success experiences in reading rather than failure experiences a big step is taken toward rebuilding his morale and integrating his personality. As the result of psychological diagnosis and remedial treatment, many resistant children have become cooperative, apprehensive children have become self-confident, discouraged children have become hopeful, and socially maladjusted children have become acceptable to the group.[19] A teacher who had participated in a remedial reading program made the following comment with respect to one of the boys who had received help from the work: "K. is one of our truants. We have previously had great difficulty in keeping him in school. He is now in one of the remedial reading clubs where he is responsible for telling other children when the group meets. His truancy first disappeared on the days the club met and recently he has been attending every day."[20]

[16] Arthur I. Gates, "Maladjustments Due to Failure in Reading," *School Executive*, Vol. 55, June, 1936, pp. 379–380.
Paul Fendrick and G. L. Bond, "Delinquency and Reading," *Journal of Genetic Psychology*, Vol. 48, March, 1936, pp. 236–243.

[17] *New York World-Telegram*, May 27, 1935.

[18] Robert C. Challman, "Personality Maladjustments and Remedial Reading," *Journal of Exceptional Children*, Vol. 6, October, 1939, pp. 7–11.

[19] Marion Monroe, *Children Who Cannot Read*, Chicago, University of Chicago Press, 1932, pp. 176–177.

[20] Marion Monroe and Bertie Backus, *Remedial Reading: A Monograph in Character Education*, Boston, Houghton Mifflin Company, 1937, pp. 155–156.

In a sense, every remedial reading case is at the same time a personality case. Because of this, work in remedial reading should have among its chief aims the development of wholesome attitudes, the fostering of sustained interests, and the structuring of desirable goals. To the extent that such work ministers to the central needs of the whole child, to that extent can it be said to be successful.

What Is Meant by "Remedial Teaching"

Although the term "remedial teaching" is virtually self-explanatory, a few words should perhaps be given to state precisely the meaning it will carry in this book. Remedial teaching, of course, has as one of its chief functions the remedying or removal of the effects of originally poor teaching and poor learning. It is thus concerned with the pupil who for one reason or another has formed ineffective methods of handling the tools of education. It is based upon a careful diagnosis of defects and causes, and aims to correct weaknesses and eliminate bad habits which may be found.

In addition to this use of the term "remedial," it is also employed in a broader sense to connote teaching which is developmental in its scope. Pupils are frequently found in our schools who do not possess any particular defects or faults which need correction, but who urgently need assistance in developing increased competence in reading and the other fundamental processes. In their cases, it is not primarily a problem of reteaching or the remedying of evils, but it is rather teaching for the first time those basic skills which are sorely needed and which apparently are lacking. A high-school pupil, for example, may never have learned the meanings of such words as *symptom, employee, hostile, valiant,* and *inheritance.* All five of these words are among the most common in the English language[21] and should be known by such a pupil. By appropriate methods these words should be taught. Another pupil may not know how to use an index, glossary, or dictionary. These are skills which are generally

[21] Edward L. Thorndike and Irving Lorge, *The Teacher's Word Book of 30,000 Words,* New York, Bureau of Publications, Teachers College, Columbia University, 1944.

needed and should likewise be taught. In this sense remedial teaching involves taking a pupil where he is and from that point leading him on to greater achievement. It is just good teaching in which the learner and his needs occupy the focal point.

In summary, it might be said that "remedial teaching" as the term is used in this book refers to the two following types of activities:

1. Eliminating ineffective habits and unwholesome attitudes, and reteaching skills which have been incorrectly learned (remedying defects).

2. Teaching for the first time those habits, skills, and attitudes which have never been learned but should have been, and which are needed by pupils (developing increased competence).

Remedial teaching is thus concerned with two types of deficiencies—the presence of bad habits and the absence of good habits. The psychological principles involved in carrying forward the work are the ones which should be used in all teaching, despite the fact that the specific procedures, techniques, and administrative devices may at times be unique.

Summary

Teachers in our elementary and secondary schools find that they are perpetually faced with the problem of what to do with the child who is deficient in reading. Remedial instruction in reading should be a normal part of the reading programs at all grade levels. Realizing that this is true, school teachers and administrators throughout the country are giving their attention to ways and means of providing effective remedial work.

Surveys have clearly shown that a large percentage of pupils in our upper grades and high schools read so poorly that they can only with extreme difficulty engage in required reading activities. Many pupils are found who are virtually nonreaders. Evidence, however, is available which indicates that the poor readers can greatly improve their abilities under the stimulus of an effective reading program. Cases are on record of pupils who have gained as much as four years in ability during the short span of nine months.

Retardation in reading or experiences of failure in any subject may seriously affect the personality development of pupils. Pupils desire recognition. When this basic craving is frustrated, certain types of escape mechanisms often make their appearance. These may be expressed in the form of bullying, blustering, and other aggressive behavior or in the form of daydreaming and other regressive types of behavior. Juvenile delinquency and all sorts of antisocial conduct can be traced to the humiliating effects caused by the failure of pupils to make adequate progress in reading.

Remedial teaching is essentially good teaching which takes the pupil at his own level and by intrinsic methods of motivation leads him to increased standards of competence. It is based upon a careful diagnosis of defects and is geared to the needs and interests of pupils.

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Chapter 2

Identifying the Poor Readers

In any remedial reading program, one of the first steps is to identify those individuals who are to receive the treatment. This makes it necessary to appraise carefully the reading abilities of the pupils in a given class or school in order that those individuals may be found who are in greatest need of special attention. The term "poor reader" is a relative one. No one is a perfect reader. No matter how well a given individual may read, there is always the possibility of further improvement. For this reason, some schools have, in addition to a remedial reading program, a developmental type of program which encourages wide reading on the part of all pupils. This is as it should be, for the good readers need stimulation and guidance in achieving more mature reading habits as well as the poor readers. The remedial reading group, however, should be made up of those pupils who are most severely retarded and who need careful individual attention if they are ever to make satisfactory progress. They are the individuals who have as a rule a long record of failure in reading behind them and whose personalities in many instances have suffered thereby. Just how many pupils to include in this group would depend among other things upon the facilities of the school, personnel available, and the method of organization to provide for remedial reading.

There are a number of ways to appraise the reading proficiencies of pupils. These include such methods as observing pupils while they study, evaluating the replies of pupils to interest inventories, noting how well pupils read when tested with several books of a graded

set of readers, studying the eye movements of pupils while they read, and administering standardized reading tests. As a rule more than one of these methods should be used in locating the "poor reader." By following this procedure much more reliable and valid results can be secured.

Observing Pupils While They Study

An alert teacher can often detect pupils who need special help in reading by observing their behavior during the supervised study period or at other times when they are carrying on study activities. Slow and inefficient readers may be discovered by noting those individuals who very infrequently turn the pages of the book or magazine they may be reading, or who markedly move their lips while reading silently. Pupils who use their fingers or pencils to guide their eyes as they read along a line of print and those who turn their heads instead of moving their eyes as they read are also easy to identify. Poor readers are often restless and fidgety and frequently interrupt their reading by looking out the window or moving about the room. Such symptoms may indicate that the materials are unsuited to the pupil's abilities or interests. At least it represents a situation which should be carefully looked into for possible connections with reading disability. Many other poor study habits, such as inability to use a table of contents, index, glossary, and dictionary, may show up under classroom observation.

Using Interest Inventories

By means of interest inventories which the teacher may devise and administer to pupils it is possible to locate those who do not like to read and who seldom read anything but assigned materials. These individuals are invariably poor readers. Even if standardized reading scores should show such pupils to be practically up to grade, the evidence is still clear that remedial work is needed. For instruction in reading has not accomplished its purpose until each individual

possesses an absorbing interest in reading and realizes its value in satisfying many of his basic needs.

An example of a very useful interest inventory is given in *Reading in Modern Education.*[1] It contains such items as: Do you enjoy reading? How often do you get books from the library? What newspapers do you read? Name your favorite magazine. Responses made by pupils to such a questionnaire are not only of aid in locating poor readers but also help give direction to remedial instruction once it has been initiated.

The inventory used in the Junior High School at Niles, Michigan, is given below:

NAME OF PUPIL ..... DATE .....

1. What do you do when you are not in school?
2. What games do you like to play?
3. Do you enjoy reading magazines and books?
4. What kind of books do you like to read?

Biography	Aviation
Adventure	Mystery
Animal Stories	Poetry
News	Plays
Legends	Myths

5. Name some books you have read this past year. Check the one you like best.
6. Do you get books you read from home? School? Public library? From a friend?
7. What kind of books and stories would you like to read?
8. What magazines do you read? Why?
9. Do you like to read newspapers? Why?
10. Do you like to have someone read to you? Who reads to you?
11. Does anyone encourage you to read during your leisure time? Who?
12. Would you like to have books of your own? What kind?
13. What school work do you like best?
14. What do you want to be?

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[1] Paul Witty, *Reading in Modern Education,* Boston, D. C. Heath and Company, 1949, pp. 302–307. Another valuable inventory is Frederick L. Pond, *Inventory of Reading Experience,* Stanford University, California, Stanford University Press.

Using Graded Sets of Books

As a supplementary device in appraising the reading ability of a given pupil, graded readers or other graded sets of books may be used. If it is thought that a pupil reads at about the fifth-grade level, he can be asked to read a few pages from a fifth reader or other book of fifth-grade difficulty.[2] Following this, his comprehension of what he has read should be tested by means of a series of questions. If he fails on half or more of the questions it is probable that the book being used is too difficult. He then should be asked to read from a book at the fourth-grade level. This procedure should be carried on until the grade level is found where he reads with facility and understanding. Often it is desirable to have a pupil read different types of materials at the various grade levels before reaching a conclusion as to his reading status. A child who reads scientific materials poorly may do much better when confronted with historical materials and vice versa.

Studying Eye Movements During Reading

In 1879 Javal, a French physiologist, observed that a person's eyes move in a series of jumps along a line of print during the reading process. This discovery led to further research in this field by Dodge, Judd, Buswell, and others. They discovered that it is possible to tell whether an individual is a good reader or a poor reader by observing his eye movements while he reads. Good readers make few fixations and few regressions when reading a given line of material, while poor readers require many fixations to cover the same amount of reading matter, and regressions are more numerous. For example, it has been found that the average second-grade child's eyes require about 200 hops (fixations) to read 100 words but an average high-school

[2] *Today's Work-Play Books,* published by The Macmillan Company, New York, or *The New Basic Readers,* published by Scott, Foresman and Company, Chicago, are examples of graded readers which can be used for this purpose. Other graded lists of books such as *Adventure with Books,* published by the National Council of Teachers of English, Chicago, are also of value in approximating a pupil's reading level.

pupil's eyes stop only about 93 times in reading the same number of words. In like manner, the typical second-grader's eyes make 50 regressive movements per 100 words in contrast with 17 such movements for high-school pupils. Table IV gives eye-movement norms for individuals in the various school grades.

TABLE IV

Eye-Movement Norms for Pupils of Varying Grade Levels[3]

	1ST	2ND	3RD	4TH	5TH	6TH	7TH	HIGH SCHOOL	COLLEGE
Fixations per 100 words	250	200	175	140	125	120	115	93	80
Regressions per 100 words	60	50	40	30	25	23	21	17	10

It is clearly seen that changes take place in the nature of an individual's eye movements as he reaches greater maturity in his reading ability. Thus the pattern of a pupil's eye movements gives a definite clue as to the level of his reading proficiency, all other things being equal. It is, of course, necessary that a check be made to see whether the pupil comprehends what he reads while his eye movements are being observed.

Eye movements during reading are symptoms of the processes taking place in the central nervous system. When a person improves his reading ability, his eye movements also change their character.

Judd[4] has concisely stated this relationship between reading ability and eye movements as follows:

> If photographs of the eye-movements of a single individual taken at different stages of his development show that the length of the steps taken by the eyes as they travel across the page has steadily increased and that the duration of the fixations made by the eyes has steadily decreased, these changes do not mean that the muscles of the eyes coordinate better than they did when the first photographs were taken. They mean that the ability of the individual to interpret what he sees has improved. The movements

[3] Adapted from *Reading in the Classroom, Teaching Analytic and Corrective Techniques,* Southbridge, Massachusetts, American Optical Company, 1942, p. 25.

[4] Charles H. Judd, *Educational Psychology,* Boston, Houghton Mifflin Company, 1939, p. 186.

of the eyes are mere symptoms. The eyes in this case are servants of the brain, which is the seat of the neural processes conditioning understanding. The eye-movements themselves are not the subjects of educational concern when reading is being taught. The eyes are the receiving organs, not the interpreting centers. They are, however, so near the interpreting centers that they reflect very directly what is happening in these centers.

Hence it is clear that while the study of a pupil's eye movements during reading will give a measure of his reading ability, it is equally clear that the remedial work should not be directed toward the training of eye movements. The remedial work should consist chiefly in providing appropriate reading experience for the pupil. The eye movements will then take care of themselves. When properly used as a measure of reading maturity only, eye-movement records are of definite value in identifying poor readers. In general, this method should be used only to supplement other evidences of poor reading ability on the part of the pupils.

An instrument known as the *Ophthalmograph*[5] has been perfected which photographs the eye movements of the pupil as he reads a fifty-word paragraph. (See Plate 1, opposite page 48.) "The principle of this camera is based upon the fact that rays of light projected upon the corneas of the eyes will be reflected. These beams can be used to activate a sensitized plate, the photographic film, and to make images upon the film. Rays of light are projected from two sources to the eyes. These corneal reflections are then focused by means of two telescopic lenses into a camera in which a 35 mm. film is moving, actuated by a synchronous motor at the rate of half an inch per second."[6] As soon as the pupil has finished reading the selection he is asked ten true-false questions on what he has read. Following this the film can be removed from the machine and developed.[7] Figure 1

[5] Manufactured by the American Optical Company, Southbridge, Massachusetts.

[6] Stella S. Center and Gladys L. Persons, *Teaching High-School Students to Read*, New York, D. Appleton-Century Company, Inc., 1937, p. 118.

[7] A model of the Ophthalmograph has been produced which develops films automatically. Eight minutes after the eye movements of a pupil have been photographed, the film is ready for study. This new-type Ophthalmograph is reproduced in Plate 1.

presents, in a diagrammatic way, the reading graph of a pupil whose eye movements were photographed in the clinic at the University of Illinois. In reading the first line of print, this pupil's eye fixated six times (each little downstroke represents a fixation). It is also noted that one of the six fixations was a regression. For the second line of

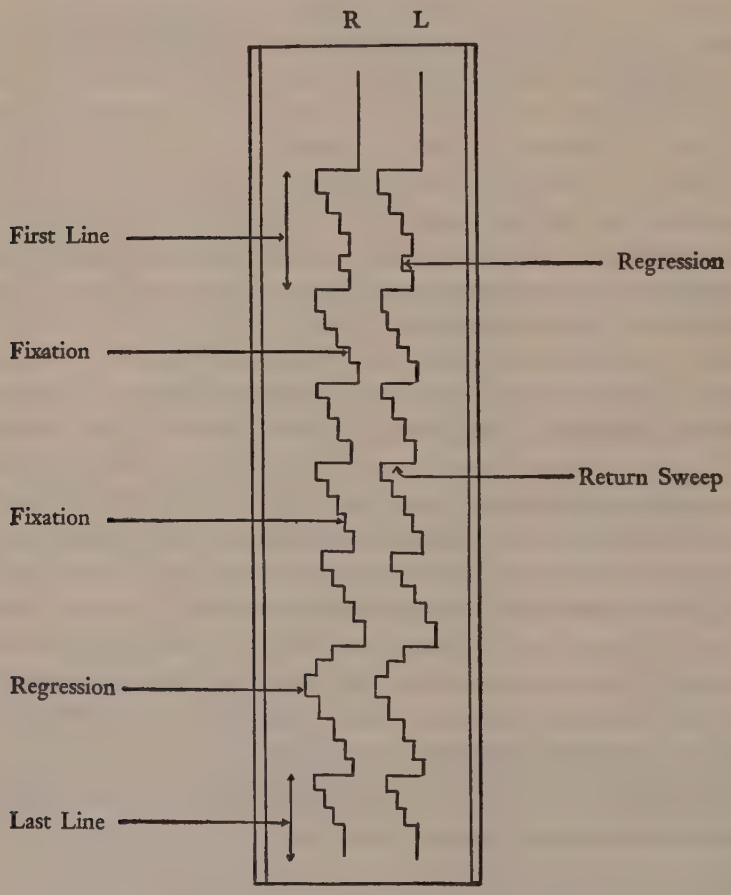

FIG. 1. PHOTOGRAPHIC RECORD OF EYE MOVEMENTS

The ninth-grade pupil whose eye movements are recorded in this graph is an excellent reader.

reading matter the film shows that the eyes made five fixations. No regressions are found in this line. The third line has four fixations; the fourth line has five; the fifth line has five; the sixth line has seven fixations, two of them being regressions; and the seventh and last line shown in Fig. 1 has only four fixations with none of them being regressions.

In analyzing such a film the first and last lines are ignored and the record is taken from the five middle lines. This procedure is followed because the first and last lines are often not typical of the individual's regular eye-movement habits. The five middle lines represent the eye movements made in reading 50 words. Referring again to Fig. 1, we see that this pupil required only 26 fixations in reading these fifty words. Of these 26 fixations in reading, only two were regressions. On the basis of 100 words this would be 52 fixations and four regressions. This indicates that the pupil whose film is shown here is an excellent reader. The average high-school pupil makes approximately 93 fixations per 100 words with 17 of them being regressions, whereas a poor reader in high school would make many more than this. One high-school girl whose eye movements were photographed in the Educational Clinic at the University of Illinois made the following record:

Film A	182 fixations per 100 words 60 regressions per 100 words
Film B	202 fixations per 100 words 52 regressions per 100 words

This indicates a reading maturity scarcely above the second- or third-grade level.

If the Ophthalmograph is to be used in appraising reading ability, several photographs using different materials should be made for each pupil. Experiments have shown that unless this is done unreliable results are frequently obtained.[8]

[8] Henry A. Imus, John W. M. Rothney, and Robert M. Bear, *An Evaluation of Visual Factors in Reading*, Hanover, New Hampshire, Dartmouth College Publications, 1938, p. 64.

Since the Ophthalmograph is a rather expensive instrument, it has not been widely used in schools. It is doubtful if it is particularly needed in the practical remedial work of a school since there are so many other ways of identifying the poor readers. If a rough appraisal of eye-movement habits in reading is desired, either the Miles Peephole Method or the Mirror Test gives very satisfactory results and the expense involved is nothing.[9]

The peephole test consists in having the pupil read a selection which has been mounted on a card through which a hole about three-sixteenths of an inch has been pierced. The teacher, holding the card before the pupil's eyes, peeps through the hole from the reverse side, and observes the number of fixations and regressions per line the eyes make during the reading performance. When this method is used it is a good plan to count the fixations at one time and the regressions at another since it is difficult to keep a record of both movements simultaneously. The mirror test consists in placing a small mirror on the left-hand page of a book while the pupil reads the right-hand page or vice-versa. The teacher stands behind the pupil and looks over his shoulder into the mirror where his eye movements can be readily observed. With a little practice a surprising degree of accuracy can be obtained in counting regressions and fixations by either of these two simple methods.

It should be stressed again, however, that faulty eye movements are symptoms rather than causes of poor reading ability. When the causes have been attacked and removed the symptoms will likewise disappear. Remedial work should therefore be directed toward causes rather than symptoms if satisfactory therapeutic results are to be accomplished.

Standardized Reading Tests

By far the most widely used method of identifying poor readers for remedial work is that which employs standardized reading tests. By means of such tests it is possible to determine with a considerable

[9] Glenn Myers Blair, "Instrumentation and the Remedial Reading Program," *Educational Administration and Supervision*, Vol. 26, March, 1940, p. 204.

degree of accuracy the grade level at which a given pupil reads. Such information is of great value, not only in identifying the poor readers but in formulating plans for remedial work. The reading test, of course, need not be used alone but may be supplemented by other methods, some of which have been described.

The question of what reading test to use in appraising the abilities of pupils is a very important one. McCall[10] has listed 97 different reading tests which have been prepared for use in elementary and higher schools, and Buros has included descriptions of 50 in his *Fourth Mental Measurements Yearbook.*[11] Even these lists do not, by any means, include all the reading tests which have been published. All reading tests are by no means equally suitable for use in the remedial programs of schools. Some of the tests of this vast array are poorly standardized; some are difficult to administer and score; some have only one form; some are too easy; some are too hard; some are not sufficiently diagnostic; and some do not provide natural reading situations.

In the next few pages a description will be given of a few of the silent reading tests which have proved satisfactory when they have been subjected to actual trial in schools.

Gates Primary Reading Tests.[12] These tests are very useful in grades 1, 2, and 3, and with extremely retarded readers at any grade level. The more elementary form of the tests, known as *The Primary Reading Tests,* is designed for grade 1 and the early part of grade 2. *The Advanced Primary Reading Tests* are for use in grades 2 and 3. Both tests measure vocabulary and ability to comprehend easy material. Test scores are interpreted in terms of age and grade norms. Both the Primary, and Advanced Primary tests may be obtained in three equivalent forms. The time required for administering the tests varies from 15 to 25 minutes.

[10] William A. McCall, *Measurement,* New York, The Macmillan Company, 1939.

[11] Oscar Krisen Buros, *The Fourth Mental Measurements Yearbook,* Highland Park, New Jersey, The Gryphon Press, 1953.

[12] Published by Bureau of Publications, Teachers College, Columbia University, New York City.

Gates Reading Survey for Grades 3 to 10.[13] This test comes in two forms and is admirably suited for use in the upper grades, junior high school, and the first two years of the regular four-year high school. For the purpose of identifying poor readers it can also be used in the last two years of the senior high school, although it will be found to be somewhat easy for the more proficient readers at this level. The test measures four fundamental aspects of reading ability, namely: vocabulary, power or level of comprehension, speed, and accuracy. The vocabulary test and the level of comprehension test are untimed. This allows the pupil to demonstrate the real extent of his vocabulary, and ability to comprehend when the time factor is eliminated. The directions for administering this test are printed on the test booklet itself, as are also the norms for interpreting results. The range of ability measured by the test and represented in the grade norms extends from 1.6 (middle of the first grade) to grade 13 (beginning of college). Because this test has been standardized on groups covering such a wide range of reading abilities it is especially useful for survey purposes and for screening out poor readers at many grade levels.

Nelson-Denny Reading Test.[14] This test, which is one of the best available for use at the senior-high-school level, is easy to give and very easy to score since a carbon offset renders it self-scoring. It comes in two forms—Form A and Form B. It consists of two parts. The first part measures vocabulary and the second, paragraph meaning. The norms give grade equivalents which range all the way from 3.0 to 16.6. In addition to these grade norms, percentile ratings are available for each high school and college class (Freshmen, Sophomore, Junior, and Senior). These tests are considerably more difficult than the Gates tests and are particularly useful in determining the reading abilities of superior pupils, although they are useful in identifying poor readers as well. The reading test itself is separate from the answer sheet. This makes it possible to reuse the test. The answer sheets, however, must be purchased as they are needed.

[13] Published by Bureau of Publications, Teachers College, Columbia University, New York City.

[14] Published by Houghton Mifflin Company, Boston.

Iowa Silent Reading Test, New Edition, Elementary Test.[15] The elementary edition of the *Iowa Silent Reading Test* is designed primarily for pupils in grades 4 to 8. It can, however, be used with pupils in the senior high school who are particularly retarded in reading. It measures rate of comprehension, directed reading, word meaning, paragraph comprehension, sentence meaning, ability to alphabetize, and ability to use an index. This test is one of the most widely used reading tests. Grade equivalents for the elementary test extend from 2.0 to 16.3. This gives a wide range, and makes it possible to appraise the reading of the very poorest readers in the junior and senior high school.

Iowa Silent Reading Test, New Edition, Advanced Test.[16] The advanced test has been designed for use in senior high schools and colleges. It has recently been standardized on the basis of approximately 10,000 cases. It measures in general the same aspects of reading as does the elementary test. It has, however, a poetry comprehension part not found in the elementary test. There are four forms, and the working time is 45 minutes. Grade equivalents are not provided for the advanced test to the same extent that they are for the elementary test, but instead, percentile ranks have been given for grades 9, 10, 11, 12, and 13; only for the test as a whole are grade norms given below grade 9. Hence, it is not possible to state for any subtest the grade level at which a pupil reads if his ability falls below grade 9. Instead his standing is interpreted in terms of the performance of other pupils of his grade. Thus a pupil in the tenth grade making a standard score of 147 on rate of reading would be given a percentile ranking of 17. This means that 83 per cent of tenth graders read faster than he, and also that 17 per cent do not read so fast. Since the many subtests are all separately timed, the *Iowa Silent Reading Tests* are more difficult to administer than are some other types of reading tests. A few of the subtests are too short to give highly reliable results. Nevertheless, the Iowa tests are among the very best available.

[15] Published by the World Book Company, Yonkers-on-Hudson, New York.
[16] Published by the World Book Company, Yonkers-on-Hudson, New York.

Traxler Silent Reading Test for Grades 7 to 10.[17] This test measures four aspects of reading, namely: reading rate, story comprehension, word meaning, and paragraph comprehension. It can be administered during a class period of 50 minutes. Four forms are available. It is one of the least artificial of the secondary-school reading tests. The first part, measuring rate and story comprehension, consists of a story followed by a series of questions. Part Two measures vocabulary by means of 50 words used in context. The third part contains six paragraphs dealing with different subjects. Each of these is followed by a group of questions. Grade norms are given but do not extend below 7.0 or above 10.9.

Traxler High-School Reading Test.[18] This test, which has been designed for use in grades 10, 11, and 12, comes in two forms. It measures rate of reading, story comprehension, and finding the main ideas in paragraphs. The general arrangement is similar to the test for grades 7 to 10. It does not, however, have a test for vocabulary, but one is in preparation and should appear at an early date. The norms consist of median scores for grades 10, 11, and 12, and percentile ratings for parts of the test as well as for the total comprehension score. Grade equivalents, however, do not extend below 10.5 or above 12.5.

California Reading Tests.[19] The tests in this series are available at four levels of difficulty. The Primary test is designed for grades 1 to 3, the Elementary test for grades 4 to 6, the Intermediate test for grades 7 to 9, and the Advanced test for grades 9 to 14. Each test is divided into two major parts—a vocabulary section and a reading comprehension section. These major divisions are still further subdivided into smaller sections which are designed to serve a diagnostic function. In the Intermediate test, for example, vocabulary is broken down into four parts—mathematics, science, social science, and general. Several forms of the test are available at each difficulty level.

[17] Published by the Public School Publishing Company, Bloomington, Illinois.
[18] Published by the Public School Publishing Company, Bloomington, Illinois.
[19] Published by the California Test Bureau, 5916 Hollywood Boulevard, Los Angeles 28, California.

Diagnostic Reading Tests.[20] This comprehensive series of tests has been developed by the Committee on Diagnostic Reading Tests. Survey tests for screening out poor readers are available for grades 4 to 6, and grades 7 to 13. Also included in the battery are detailed diagnostic tests especially designed for grades 7 to 13. The Diagnostic Battery includes the following parts: Section I, Vocabulary; Section II, Comprehension—silent and auditory; Section III, Rates of Reading—general, social studies, and science; Section IV, Word Attack—oral and silent. Alternate forms have been prepared for both the survey and diagnostic tests. The test norms are based upon a population of approximately 30,000 public school pupils, and 10,000 college freshmen.

SRA Reading Record.[21] This test measures achievement in ten reading skills: rate, general comprehension, paragraph meaning, directory reading, map-table-graph reading, advertisement reading, index usage, technical vocabulary, sentence meaning, and general vocabulary. The material is useful for pupils in grades 8 to 13. Data obtained should help teachers answer such questions as, "Is this pupil reading up to par for his grade in school?" "If he is below par, where do his weaknesses lie?" Profile sheets are available which are useful in planning remedial instruction. Administration time for the test is 40 minutes. Only one form is available.

Schrammel-Gray High-School and College Reading Test.[22] This is designed for use in grades 7 to 12 and for college Freshmen. Two equivalent forms of the test are available, each of which is composed of 25 paragraphs of reading material. Each paragraph is followed by several objective questions covering its content. There are altogether 100 questions for each form of the test. The test yields three significant scores. First, the gross comprehension score, which consists of the total number of questions answered correctly on the paragraphs read. Second, the rate score, which is based on the num-

[20] Published by the Committee on Diagnostic Reading Tests, Inc., Kingscote Apt. 3G, 419 West 119th Street, New York, New York.

[21] Published by Science Research Associates, 57 West Grand Avenue, Chicago 10, Illinois.

[22] Published by the Public School Publishing Co., Bloomington, Illinois.

ber of words read per minute during a 25 minute period. Third, the comprehension-efficiency score, which is a ratio between the pupil's gross-comprehension score and his rate score. Norms are supplied for each of these three measures of reading ability. The norms are expressed in terms of percentile scores for the following grades: 7, 8, 9, 10, 11, 12 and for college Freshmen. The mechanics of the test are excellent and it is arranged in such a way that a natural reading situation is employed. The person reads for 25 minutes without interruption, and his ability is inferred from this 25 minute sample.

Other Silent Reading Tests. Some of the silent reading tests most used in elementary and higher schools have been listed and briefly discussed. There are many others which may be used to identify poor readers. Among them are the following:

Kelley-Greene Reading Comprehension Test, (grades 9–12 and college Freshmen), Yonkers-on-Hudson, World Book Company.

Elementary Reading: Every Pupil Test, (grades 4–6), Ohio Scholarship Tests, Ohio State Department of Education.

Haggerty Reading Examination, Sigma 1 (grades 1–3), Sigma 3 (grades 6–12), Yonkers-on-Hudson, World Book Company.

Metropolitan Achievement Tests: Reading, Elementary (grades 3–4), Intermediate (grades 5–7.5,), Advanced (grades 7–9.5), Yonkers-on-Hudson, World Book Company.

Nelson Silent Reading Test, (grades 3–9), Boston, Houghton Mifflin Company.

Cooperative Reading Comprehension Test, Test C1 (grades 7–12), Test C2 (superior 11th and 12th grade and college students), Princeton, New Jersey, Educational Testing Service.

Sangren-Woody Reading Test, (grades 4–8), Yonkers-on-Hudson, World Book Company.

Silent Reading Comprehension: Iowa Every-Pupil Tests of Basic Skills, Test A, Elementary (grades 3–5), Advanced (grades 5–9), Boston, Houghton Mifflin Company.

Stanford Achievement Tests: Reading, Primary (grades 2–3), Intermediate (grades 4–6), Advanced (grades 7–9), Yonkers-on-Hudson, World Book Company.

Thorndike-Lorge Reading Test, (grades 7–9), New York, Bureau of Publications, Teachers College, Columbia University.

Durrell-Sullivan Reading Capacity and Achievement Tests, Primary

(grades 2.5–4.5), Intermediate (grades 3–6), Yonkers-on-Hudson, World Book Company.

Chapman-Cook Speed of Reading Test, (grades 4–8), Minneapolis, Educational Test Bureau.

Gates Basic Reading Test (grades 3–8), New York, Bureau of Publications, Teachers College, Columbia University.

Nelson-Lohmann Reading Test, (a separate test for each grade, 4 through 8), Minneapolis, Educational Test Bureau.

Developmental Reading Tests, Level II (grades 5–7), Level III (grades 6–8), Minneapolis, Educational Test Bureau.

Appraising Oral Reading Ability. In diagnosing a reading case, it is often a good procedure to administer a test of oral reading ability. By this means it is possible to discover many things about a pupil's reading technique which would otherwise escape notice. Such a test will reveal among other things the following:

1. How the pupil attacks new and unfamiliar words. (Some pupils spell out such words, others try to sound them out, others attempt to guess the meaning from the context, while some possess no technique whatsoever.)

2. The types of mispronunciations he makes, and his tendency to make reversals (*was* for *saw, war* for *raw*).

3. Any vocal defect he may have such as stuttering or clutches.

A most useful test for measuring oral reading ability is the *Gray Standardized Oral Reading Paragraphs Test.*[23] This test consists of a series of 12 short paragraphs arranged in order of increasing difficulty. While the pupil attempts to read them the teacher keeps a record of (1) the time required for each paragraph, and (2) the number and types of errors made. Norms are provided with the test which make it possible to compute the pupil's *oral reading grade.* This can be compared with his *silent reading* grade which has been secured from administering the usual type of silent reading test.

Another excellent test of oral reading ability is provided in the reading section of the *Wide Range Achievement Test.*[24] This test,

[23] Published by the Public School Publishing Company, Bloomington, Illinois.

[24] *Wide Range Achievement Test: Reading, Spelling, Arithmetic from Kindergarten to College,* by Joseph Jastak and Sidney Bijou, Revised 1943. Test blanks may be secured from Psychological Corporation, 522 Fifth Avenue, New York.

like the *Gray Standardized Oral Reading Paragraphs Test,* must be administered individually to the pupil. Grade norms are provided which extend from below the first grade up to and beyond the college level. The author of this test recommends that the errors made by pupils be classified according to one or more of the following types: (1) strephic, (2) phonic, (3) ideational, (4) expressional. Strephic errors include "confusions of single letter forms such as h, n, m, u, v, w; t, l, f; b, d, p, q, g, y, k; reversal of letters within words and words within sentences and most omissions of letters and words." Phonic errors are defined as "confusions of two or more sound values corresponding to the same symbol." Ideational errors consist of guesses and additions caused by "resort to context clues or incomplete letter clues in partial or total disregard of the objective symbol pattern." Expressional errors are those resulting from "misplacements of the stress in polysyllabic words" or from "incorrect intonation of phases and sentences expressing an idea."[25]

A third important measure of oral reading ability that has been developed is the *Gilmore Oral Reading Test.*[26] It provides the teacher with a list of difficulties encountered by a given pupil in his attempt to read orally ten paragraphs. This test is useful in appraising the performance of pupils in grades 1 through 8 or in higher grades if reading retardation is severe. This device comes in two equivalent forms —A and B, and requires an administration time of about 15 to 20 minutes. It has been carefully constructed and possesses excellent norms for evaluating oral reading ability. The first page of the record blank used with the Gilmore test is shown in Fig. 2.

Other tests which the teacher will find valuable in appraising oral reading skills are the *Leavell Analytical Oral Reading Test,*[27] the *Durrell Analysis of Reading Difficulty,*[28] and the *Gates Diagnostic Reading Tests.*[29]

[25] Joseph Jastak, *Wide Range Achievement Test* (Manual), Wilmington, Delaware, Charles L. Story Company, pp. 17–18.

[26] Published by World Book Company, Yonkers-on-Hudson, New York.

[27] Published by Educational Test Bureau, Minneapolis.

[28] Published by World Book Company, Yonkers-on-Hudson, New York.

[29] Published by Bureau of Publications, Teachers College, Columbia University.

Gilmore Oral Reading Test

FORM **A**

by John V. Gilmore
Associate Professor of Psychology
Boston University

RECORD BLANK

NAME_____ DATE_____ GRADE_____

SCHOOL_____ AGE_____ (YEARS) (MONTHS) SEX_____

CITY_____ STATE_____ EXAMINER_____

Summary Check List of Difficulties

From an analysis of the pupil's oral reading performance, complete the check list below.

____ Many substitutions
____ Habitual mispronunciations
____ Many words pronounced by examiner
____ Habitual disregard of punctuation
____ Habitual insertions
____ Habitual hesitations
____ Habitual repetitions
____ Habitual omissions
____
____
____
____

Check the following immediately after completion of the testing:

____ Word-by-word reading
____ Reads in monotone
____ Strained, high-pitched voice
____ Volume too loud
____ Volume too soft
____ Poor enunciation

Comments:_____

Test Summary

PARAGRAPH	ACCURACY: ERRORS	ACCURACY: 10 MINUS NO. ERRORS	COMPREHENSION: NO. RIGHT (OR CREDITED)	RATE: WORDS IN ¶	RATE: TIME IN SEC.
1				26	
2				50	
3				51	
4				68	
5				107	
6				107	
7				126	
8				147	
9				184	
10				252	
	ACC. SCORE (TOT. "10 MINUS NO. ERRORS" COLUMN)		COMP. SCORE (TOT. NO. RIGHT OR CREDITED)	(1) NO. WORDS READ*	
				(2) TIME IN SEC.*	
				(1) ÷ (2)	× 60
GRADE EQUIV.				RATE SCORE (WPM)	
RATING					

* Do not count "ceiling" paragraph or paragraphs below "basal."

Silent Reading Test Data DATE_____

TEST_____

WORD MEAN. (VOCAB.) GRADE EQUIV._____

PARA. MEAN. (READ.) GRADE EQUIV._____

AVR. READ. GRADE EQUIV._____

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FIG. 2. FIRST PAGE OF THE RECORD BLANK USED WITH THE GILMORE ORAL READING TEST

Some pupils make many errors on an oral reading test, and yet comprehend fairly well on a silent reading test. Such individuals rely heavily on the context of what they are reading to give them the meaning. This technique, of course, sometimes fails them and serious blunders are committed. Errors revealed by observing a pupil read orally should be corrected at the earliest possible moment, for good oral reading is the foundation stone of good silent reading.

If a standardized oral reading test is not available to the teacher, he can use any suitable reading passage to diagnose the pupil's characteristic oral reading habits. It will be impossible, of course, to compute an oral reading grade by this method. Nevertheless, much valuable information can be secured which should point to appropriate remedial procedures. In Plate 4 facing page 80 a seventh-grade teacher is shown recording the types of oral errors a pupil makes when reading a book.

Reliability and Validity of Tests. A test which is to be used in the study of a given individual should be both highly *reliable* and *valid.* A test is reliable if it measures consistently whatever it does measure, and valid when it measures what it purports to measure. Tests which have reliability coefficients of less than .90 may be useful for comparison of groups, but are not very satisfactory for purposes of individual diagnosis. The reliability and validity coefficients of tests are often given in the manual of instructions which comes with the tests. Schools would do well also to compute such coefficients from the results obtained from their own use of them.[30]

Informal Teacher-Made Tests of Reading

Schools which are not financially able to purchase standardized tests of reading need not for that reason omit entirely the testing of their pupils' reading skills. Teachers can devise many types of tests which can be used in identifying the poor readers in a class or school.

[30] For a thorough and detailed discussion of reliability and validity of tests see J. P. Guilford, *Fundamental Statistics in Psychology and Education,* Second Edition, New York, McGraw-Hill Book Company, Inc., 1950, Chaps. 17, 18.

For testing speed of reading, a practical plan would be to have all the pupils begin at a certain page in their textbook (at a place not yet reached in the work of the class) and read as rapidly as they can for 10 or 15 minutes. At the end of this time the teacher should have the pupils stop and mark the place they have just finished reading. The number of words read during the time allotted can be counted, and from this can be computed the average number of words read per minute. In order to be sure that the pupils really read the number of pages or words which they report, it is advisable to test them with a few comprehension questions covering the material used in the speed examination. Other materials than those found in textbooks can also be used in evaluating speed of reading. Magazine articles, newspapers, novels, or almost any other type of reading matter is often appropriate. If a group is being tested, it is of course necessary that a sufficient number of copies of the same selection be available so that each pupil may have one.

In measuring reading comprehension, the teacher can also construct his own tests. Materials from books or articles may be used, or the teacher may write his own selections and have them mimeographed. Carefully prepared questions covering the materials read should be provided each pupil after he has had time to read the selection or selections. These can be mimeographed and handed to the pupils or written on the blackboard. In measuring level of comprehension, it is better not to employ a time limit, since the object is to find out if the pupil can really understand what he reads. Types of questions which can be employed in evaluating comprehension are the following:

1. Questions which measure ability to understand stated facts.
2. Questions which measure ability to comprehend facts that are implied.
3. Questions which test whether the pupil is able to gather the central idea from a paragraph.
4. Questions which evaluate the ability to read and understand questions.
5. Questions which check the pupil's knowledge of word meanings.

Informal teacher-made tests of the type just described lack national grade norms, but they can be very useful in locating poor readers and also in indicating specific weaknesses that they may have. The teacher, if he wishes, may develop his own class or school norms.

Selecting Pupils for Remedial Work

After reading tests have been given or other appraisals have been made of the reading equipment of the pupils, which ones should be selected for remedial work? This question was touched upon earlier in this chapter, but it is such an important one that a few additional remarks should be made concerning it. It should be emphasized again that every pupil needs to improve his reading techniques regardless of the fact that test data may show him to be up to grade. It is obviously impossible to give every child special treatment, although it is a rare individual who possesses no reading weaknesses. Superior readers and average readers will in general have to receive whatever attention they get from regular classroom teachers. This fact suggests the importance of every teacher being a *teacher of reading.*

In most schools, however, there is a sizeable group of pupils who have no chance of surviving in the regular classes because of the seriousness and extent of their retardation in reading. This is the group which should have the most expert type of remedial instruction that is possible.

Some schools select for remedial training all pupils who fall below their grade norm on the reading tests, while other schools select only those pupils who are one or even two grades retarded in reading ability. Some select only those whose reading ability is below their mental ability or their ability in other school subjects. If the facilities for carrying on remedial reading are limited and if the school is large, it is possible that only those pupils might be singled out for special help who are at least three grades retarded as measured by the standardized reading tests. If, for practical reasons, it should be found necessary to further reduce the size of the remedial reading group or groups, it would probably be a good plan to retain those

poor readers whose mental ages far outstrip their reading ages and to exclude for the time being those whose mental ages do not greatly exceed their reading ages. What is "poor reading" for one child may not be considered quite so poor for another child when the mental ages of the two children are taken into account. Remedial training should, however, be extended to as many of those needing it as possible. If the school organization and personnel are not adequate to handle the large number of children needing special help they should be expanded until they can do so.

It is a good plan to select the pupils who are to be given special remedial work early in the school year, or before that time if possible. If classes in remedial reading are going to be organized for seventh graders in the junior high school, it is a good idea to have tests given to all the sixth graders in the school system before they come to junior high school. In like manner, eighth graders might well be tested before they enter high school so that data will be available for use in selecting ninth grade remedial groups.

A number of advantages result from knowing in advance of the opening of classes which pupils need remedial instruction in reading. In the first place no time is lost in getting the work started. Second, embarrassment to the pupils which might result from changing from one class to another or the disruption of schedules is avoided. Third, pupils may be quietly sectioned to the classes most appropriate to their needs without their being aware that there is anything "special" about the class to which they are assigned. A number of schools have reported to the writer that their pupils who are enrolled in special sections of English or remedial reading classes are totally ignorant of the fact that there is any distinction between the classes they are in and the regular ones. In such instances the remedial classes are not labeled as such. On the time schedule they appear as regular English classes. The only difference between them and the other sections is what goes on in the classroom.

In no case should pupils who are selected for remedial work be stigmatized. In fact, the word "remedial" should never be used in connection with the work. No pupil likes to take "remedial" work.

But many pupils would like to improve their reading ability. If the class for retarded readers in a high school, for example, is to be labeled anything except regular English, it might bear such a title as Modern Reading Methods or Advanced Techniques in Reading. Few if any pupils would be adverse to enrolling in such courses. In later chapters more will be said about procedures to be employed in the teaching of the group or groups selected for special assistance in reading.

Specific Plans Used by Schools

It was suggested previously that a variety of procedures are used by schools in identifying and selecting pupils for remedial work in reading. A few specific examples of the methods employed will now be given.

Public School 233, Brooklyn, New York. In this school pupils are given reading tests. Any pupil whose reading achievement falls two or more years below the reading norms for his grade is placed in a special remedial reading class. In one such class "the pupils ranged from eight to almost 13 years of age; from grade 3B to 7A; from 0.0 to 4.70 in reading-grade level according to standardized tests; and had intelligence quotients ranging from 60 to 113."[31]

Madisonville School, Cincinnati, Ohio. All reading teachers in grades 2 through 7 nominate pupils who would profit from attending the remedial reading class. A study is made of each of these children to see if he is really retarded in reading when his I.Q. is taken into account. Those children whose reading test achievements fall one grade or more below their reading potentialities (as measured by the mental test) are candidates for the class.[32]

Junior High School 240, Brooklyn, New York. In September, reading tests are administered to all pupils who have been designated by their elementary or junior-high-school teachers as needing reme-

[31] Sigmund Fogler, "Remedial Reading for Selected Retarded Children," *Elementary School Journal,* Vol. 51, September, 1950, p. 22.

[32] Rose Laffey, "A Program in Remedial Reading," *Elementary English,* Vol. 27, April, 1950, pp. 230–239.

dial instruction. "The results are compared with the mental age or expectancy level. If a pupil's reading ability is found to be two years below his mental age, we recommend him for a special remedial reading group. Those cases whom we regard as most urgent and those cases for whom we feel we can do most within a short period of time are admitted first."[33]

Southwest High School, St. Louis, Missouri. The teachers in the English Department recommend for the reading class students who show signs of reading handicaps. The children thus recommended are given the *Modern School Achievement Test,* Short Form—Skilled Subjects. By means of this test the pupil's reading grade in speed and comprehension is ascertained. If his reading grade is below his high-school grade, he is considered for the reading class. A conference is held with his adviser, one of his parents, and with the child. All are advised as to what the class will do for the child and each decides whether or not the child should be assigned the subject.

Edwin Denby High School, Detroit, Michigan. Each semester a survey is made of the entering ninth grade pupils. The reading ages and mental ages are obtained for each pupil. For those whose reading ages are two or more years below their mental ages, a remedial program in reading has been worked out.

Abraham Lincoln High School, Council Bluffs, Iowa. When the pupils enter the school an appraisal is made of their achievement records in the grades, and in addition they are given the *Iowa Silent Reading Test.* On the basis of this information and the teachers' judgments, the Freshmen and Sophomores are placed in A, B, and C groups. The C division is made up of those pupils who are deficient in silent reading ability and who need further training.

Anderson Senior High School, Anderson, Indiana. Every pupil previous to entering high school is given a standardized reading test. Anyone who rates at the seventh grade or below is placed in a laboratory remedial English group.

Roosevelt High School, East Chicago, Indiana. Shortly after the

[33] Rose Mohel, "The Remedial Reading Program at Junior High School 240," *High Points,* Vol. 35, October, 1953, p. 25.

mid-term grading period, a meeting of all ninth-grade academic teachers is called. At this meeting instruction sheets for the selection of pupils for remedial work (English 6X) are handed out and explained. Nomination blanks are also made available. A date is set about a week from the above meeting on which the nomination blanks must be in the hands of the English teachers. Those pupils who are nominated are called at specific periods to take the *Gates Silent Reading Test,* Types A, B, and C, the *Unit Scales of Attainment,* and sometimes the *Otis Self-Administering Tests of Mental Ability.* This information is sent to the assistant superintendent who classifies the pupils after careful consideration. An attempt is made to include in the remedial reading classes only children with relatively high IQs. The nomination blank used in selecting pupils for work in remedial reading in Roosevelt High School is presented below.

East Chicago Public Schools

Nomination for English 6X, by _____ Teacher
Name of Pupil _____
Date _____ Section _____
Course: *Underscore* College Prep.; Commercial; Vocational; General
Age, in years and months ..... _____ yrs. _____ mos.
Estimate of intelligence:
(superior; average; slow; subnormal)..... _____
Specific statement or analysis of pupil's difficulty. Why is he unable to read, or what is wrong with his habits of study?

_____

_____

Decatur High School, Decatur, Illinois. Students are placed in a remedial class because they have failed Sophomore English the preceding semester or because their junior-high-school English teacher recommends that they be given remedial work.

Waller High School, Chicago, Illinois. All entering 9B pupils who are below 7.0 in reading ability (whose proficiency in reading is also below their mental ability) are placed in R English classes, where

three days a week are spent with individualized unit materials which have been adapted to the McDade system of instruction.

Kelly High School, Chicago, Illinois. The students are selected on the basis of the deviation between the actual reading grade as indicated by the results of two reading tests and the reading grade expectancy for the student's mental age. When this deviation is greater than two years the student is placed in a remedial class.

Danville High School, Danville, Illinois. At the beginning of the semester the Thorndike-McCall reading test and the Iowa Every-Pupil English test are administered to all pupils of the high school. From these scores and personal observations of the English teachers, recommendations are made for the remedial classes.

Oakland High School, Oakland, California. In the low tenth grade each student is given one of the standardized reading tests as well as a mental test. By comparison of reading and mental ages the teachers discover those students who need special help in developing better reading techniques. For this specific purpose there has been established a remedial reading class, composed largely of low tenth-grade pupils who are twelve or more months retarded in their reading ability as judged by the mental test results. In order not to encumber the class with pupils of low mentality, this particular class has been limited to pupils whose IQs range approximately between 90 and 110.

Santa Monica High School, Santa Monica, California. All students entering the senior high school with a score of eighth grade or below on the *New Stanford Reading Test* are put in the remedial classes where they are given special help for one semester. These students, however, are not told that they have been segregated, because it is felt that this might develop a feeling of inferiority on the part of many.

Meriden High School, Meriden, Connecticut. Pupils who are unusually poor in reading ability are given intelligence tests. If a pupil has an IQ of 90 or higher he is sent to a teacher who is a specialist in reading techniques.

Pulaski High School, Milwaukee, Wisconsin. Pupils who are defi-

cient in reading ability are recommended for special remedial or corrective instruction by their English teachers. Such recommendations are based upon (a) general achievement, (b) knowledge of basic skills, (c) retardation in school, (d) intelligence quotient, (e) reading tests.

John R. Rogers High School, Spokane, Washington. The entering Freshmen who have shown need for help in reading, determined by the *Haggerty Reading Examination,* and the opinion of their eighth-grade teachers, are placed in a special reading class, for which regular ninth-grade English credit is allowed.

Sam Houston High School, Houston, Texas. All the incoming pupils are tested, and the lowest 60 are assigned to a period in which the development of reading ability is emphasized.

Summary

A first step in any remedial reading program is to identify those pupils most in need of attention. Procedures which can be employed for this purpose include: observing pupils while they study; studying eye movements during reading; using interest inventories, graded sets of books, standardized silent reading tests, standardized oral reading tests, and informal teacher-made tests of reading. Schools more frequently use standardized silent reading tests for locating their poor readers than any other method.

Among the silent reading tests widely used for identifying retarded readers are the *Gates Primary Reading Test,* the *Gates Reading Survey for Grades 3 to 10,* the *Iowa Silent Reading Tests,* the *California Reading Tests,* the *Traxler Reading Tests,* the *Nelson-Denny Reading Test,* the *Diagnostic Reading Tests,* the *SRA Reading Record,* and the *Schrammel-Gray High-School and College Reading Test.* Excellent tests of oral reading ability are the *Gray Standardized Oral Reading Paragraphs Test,* and the *Gilmore Oral Reading Test.* Other valuable silent and oral reading tests are described in this chapter which may be successfully used by schools.

After the ineffective readers have been located, the next problem is to decide which ones should be selected for special remedial work.

A good plan is to choose first those pupils whose reading abilities are well below their mental abilities or their abilities in other school subjects. These are the ones who are likely to make the greatest progress in the shortest time. The reading improvement program should, however, be extended as rapidly as possible to include all pupils who are in need of special help and who can profit from the work.

Pupils who are to be given remedial instruction in reading should be selected early in the school year or before that time if possible. Some schools give their reading tests in the spring of the year or during the week prior to the opening of school. Three advantages of knowing in advance which pupils are to be in the remedial classes are (1) no time is lost in getting the work started, (2) pupils are saved the embarrassment of being shifted from one class to another after the semester is under way, and (3) pupils may be quietly sectioned to the class designed to meet their needs without their knowing that there is anything "special" about their class.

Pupils selected for remedial work should never be stigmatized or made to feel that they are different or inferior to other pupils. The special reading classes should not be labeled "remedial." At the elementary-school level the classes can, for example, be given regular grade designations such as Miss Jones' section of fourth-grade reading. At the junior- or senior-high school levels if the classes are to be called anything other than regular English, they might carry such titles as Modern Reading Methods or Advanced Techniques in Reading.

References for Further Study

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Chapter 3

Determining the Cause of the Reading Disability

After the retarded readers have been identified, a careful diagnosis of each pupil should be made in order to find out, if possible, what lies at the bottom of his difficulty in reading. If the particular cause or causes can be determined, appropriate remedial measures can more certainly be taken. As long as the cause of the reading disability remains a mystery, specific and intelligent remedial work is wellnigh impossible. In such an event, "shotgun" methods have to be resorted to which are of doubtful benefit. Many times the remedial work when not directed toward specific causes may create new problems for the child and may do more harm than good.

Frequently in cases of extreme retardation in reading there is a multiplicity of causes operating rather than a single one. A careful diagnosis should, insofar as it is possible, appraise the various factors that are operating so that they may be taken into account in the treatment that follows. The causes of ineffective reading are many. Some may operate in a given case but be entirely lacking in other cases. In the next few pages a consideration will be given to a number of factors which frequently underlie reading difficulty.

Poor Visual Perception

It is an obvious fact that if a pupil cannot see, he cannot read ordinary printed material. Braille has been provided for the blind, and

PLATE 1. Using the Ophthalmograph to Photograph the Eye Movements of an Elementary-School Pupil

PLATE 2. Testing a High-School Pupil with the Keystone Visual-Survey Telebinocular

in sight-saving classes various aids have been supplied for children who are nearly blind. But in regular school classes little attention is often accorded to pupils who are suffering from rather severe visual defects. It is possible for such defects to interfere with the child's progress in reading. A child whose eyes are not functioning properly may suffer from headaches, eyestrain, nervous tension, and other ailments which may make reading a very unpleasant activity. Furthermore, his perception may be so poor that he will have trouble in distinguishing one word from another.

It is not to be inferred from what has been said that all individuals who suffer from visual defects are also retarded in reading ability. There are numerous studies which show that many pupils have acquired excellent reading technique in spite of poor visual equipment. The fact, however, that visual deficiency may be an important factor in the reading retardation of a given individual makes it most important that the diagnosis include a thorough ocular checkup.

There are several tests which can be employed by teachers and by schools to appraise the visual equipment of pupils. Some of them will now be described and a consideration of their merits will be given.

Keystone Visual Survey Instrument. This apparatus[1] also known as the telebinocular is shown in Plate 2 facing this page. It checks in a very exhaustive manner the visual equipment of a child. It not only screens out those individuals who are nearsighted, farsighted, or have astigmatism, but it also measures vertical imbalance, lateral imbalance, far-point fusion, binocular visual efficiency, near-point fusion, and stereopsis level. The materials for this test are mounted on stereoscope cards and are placed in the telebinocular, which is in reality an elaborate stereoscope. The test can be given by a schoolteacher, the school nurse, or psychologist, as little training and study are needed to administer it. This test is not only more comprehensive than most vision tests but has the distinction of being the first one devised to appraise the coordination of the eyes under conditions similar to those involved in reading.

[1] Distributed by the Keystone View Company, Meadville, Pennsylvania.

Betts[2] has listed the chief factors which contribute to the validity of the test as follows:

1. Each eye is tested independently *while both eyes are seeing as habitually.* This is accomplished by having a stereoscopic pair of photographs before the eyes. To all appearances the right-eye and left-eye halves of the slides are identical except that the small test objects are omitted from the right-eye half while the left eye is being tested and vice versa. This is achieved without the subject being aware of the phenomenon.
2. Binocular coordination which is suspected as being essential to rapid and efficient reading habits is appraised. Muscle balance, book distance and blackboard distance fusion, and eye coordination power are tested.
3. Two-eyed visual efficiency as well as the acuity of each eye is tested.

The telebinocular has become a part of the standard equipment of many reading clinics, and considerable numbers of schools have purchased it. It is not meant to take the place of a regular ocular examination by an eye specialist. It is merely a survey test to pick out those individuals who need further examination. The schoolteacher or psychologist does not make any prescription on the basis of the results found. The recommended procedure is to refer to a competent oculist those individuals who fail the telebinocular test. Two studies[3] have shown that the telebinocular sometimes indicates that pupils have visual defects when further examination does not reveal this to be the case. This, however, is not such a serious type of error, as it is much better to refer a pupil for an examination who does not need one than to overlook a pupil who is in need of ocular attention. As a simple screening device the *Keystone telebinocular* is probably as good as any test which is now available for teachers to use.

[2] E. A. Betts, *The Prevention and Correction of Reading Difficulties,* Evanston, Illinois, Row, Peterson & Company, 1936, p. 164.

[3] Laura Oak, "An Appraisal of the Betts Visual Sensation and Perception Tests as a Sorting Device for Use in Schools," *Journal of Educational Psychology,* Vol. 30, April, 1939, pp. 241–250.

J. B. Hitz, "An Evaluation of Vision-Testing Methods in Schools," *Sight-Saving Review,* Vol. 9, March, 1939, pp. 47–52.

Eames Eye Test. Another visual test which gives reliable results and which is exceedingly easy to administer is the *Eames Eye Test.*[4] It screens for visual acuity, nearsightedness, farsightedness, muscular imbalance, fusion, and astigmatism. These various subtests are scored as either "Passed" or "Failed." The fact that the test costs so little, is so simple to use, and yet checks such a wide range of visual defects makes it an unusually appropriate test for school use.

Snellen Chart. In the event that the *Keystone telebinocular* or the *Eames Eye Test* is not available, the teacher or school psychologist can use the simple Snellen Chart[5] for detecting nearsightedness and for measuring visual acuity. When the Snellen Chart is used, the acuity of vision is expressed in the form of a fraction. The numerator of the fraction corresponds to the number of feet at which the pupil stands from the chart, while the denominator contains the number of feet at which the average person can read the given lines of letters. The typical procedure is to have the pupil stand at a distance of twenty feet from the chart while one eye at a time is tested. This is then followed by examining the pupil with both eyes functioning. Normal vision is 20/20.[6] If a person makes this score, it indicates that he can see at 20 feet what the average person sees at 20 feet. If a pupil cannot read more than the fifty-foot line at a distance of 20 feet, his record would be 20/50, which indicates that at 20 feet he reads what the ordinary person reads at 50 feet. This, of course, indicates a rather marked visual defect. If an individual can read the fifteen-foot line at a distance of 20 feet his record would be 20/15,

[4] Handled by the World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois.

[5] Distributed by the American Optical Company, Southbridge, Massachusetts. The Lowell modification of the Snellen Chart is handled by the C. H. Stoelting Company, Chicago. This chart also contains two colored lines, one a red and the other a green, which are useful for obtaining an idea of the pupil's color perception. Snellen Charts are also published and distributed at cost by the National Society for the Prevention of Blindness, 450 Seventh Avenue, New York.

[6] The Report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association with the cooperation of the National Society for the Prevention of Blindness has suggested that a line on the Snellen Chart be considered as failed when an individual makes more than two errors in reading that line.

which signifies that he has better than average eyesight. If a pupil does not have at least 20/40 vision, that is, if he cannot read the forty-foot line at a distance of 20 feet, he should be referred to an eye specialist for an examination. Pupils who show symptoms of eyestrain should be recommended for examination even though their vision is 20/20. Although the Snellen Chart checks very well general acuity and nearsightedness, it is not of much use in detecting the refractive errors of farsightedness and astigmatism.

Astigmatism, which results from the uneven curvature of the cornea and which prevents the pupil from seeing clearly in all meridians can, however, be easily detected by using any one of several astigmatic charts which are available. The "clock dial" chart and the Verhoeff type chart are among the ones most frequently used.[7] The astigmatic charts are as easy for a teacher to use as are the various types of Snellen charts. If the results of the testing indicate that a pupil has astigmatism, he should be advised to consult a competent eye specialist.

A. M. A. Rating Reading Card. Another very useful vision test somewhat similar to the Snellen Chart is the *A. M. A. Rating Reading Card.*[8] One side of this card is reproduced in Fig. 3. In taking the test, one eye at a time is tested with the other being covered. The card should be held at exactly 14 inches from the eye. To ensure that this distance is maintained, it is a good plan to attach the card to one end of a stick which is 14 inches long. The other end of the stick can be placed against the forehead while the card is being read. If a pupil can read the first line of the card his visual acuity rating is 14/14 and his visual efficiency rating is 100 per cent. If he fails the first line but is able to read the second, his acuity rating is 14/21 and his efficiency rating is 91.5 per cent. A pupil failing both the first and second lines of the card but passing the third would have a visual score of 14/24.5 and an efficiency rating of 87.5 per cent.

[7] Either of these astigmatic charts may be purchased from C. H. Stoelting Company, Chicago.

[8] Sold by the American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

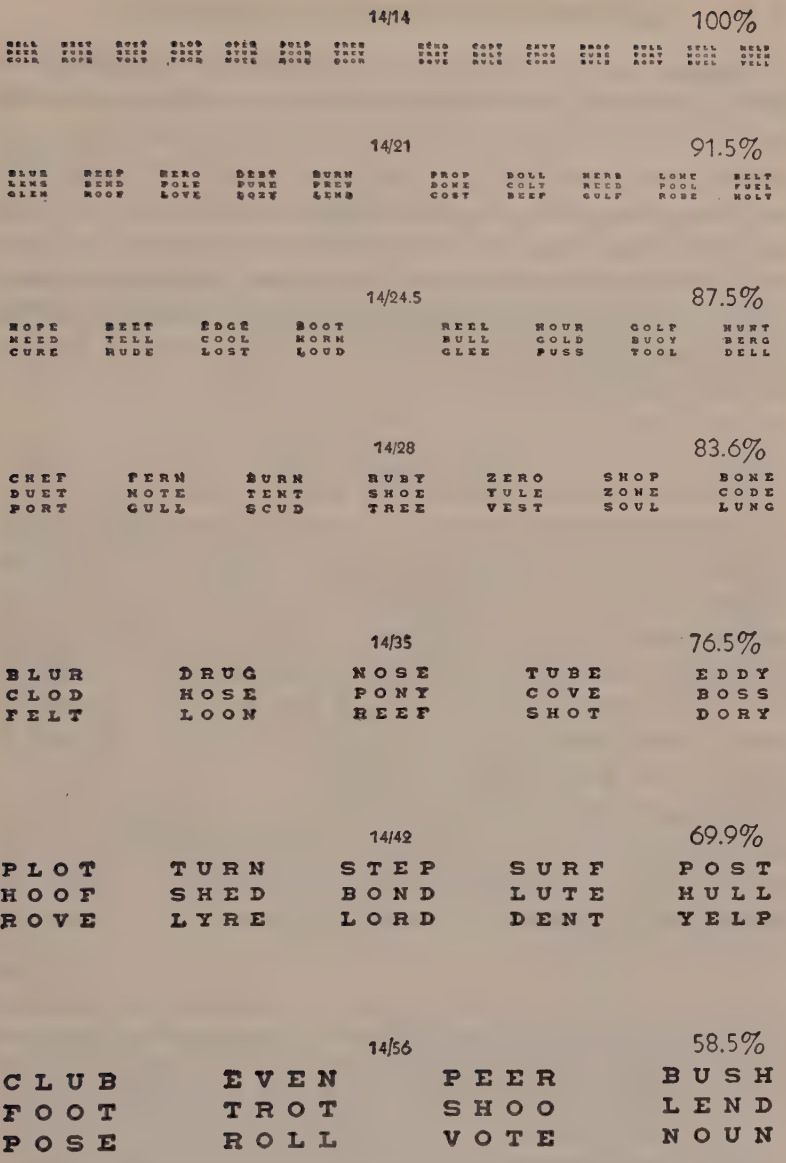

FIG. 3. AMERICAN MEDICAL ASSOCIATION RATING READING CARD
(SLIGHTLY REDUCED IN SIZE)

Any pupil who is unable to read the majority of the words in the first line, or all the words in the second line, should be referred to an eye specialist for further study. This simple test is easy to administer and screens out very adequately pupils with weak eyes and those whose eyes are grossly myopic. It does not, however, check for astigmatism, muscular imbalance, and other defects such as are detected by the *Keystone telebinocular*. It is, nevertheless, a valuable little test to have at hand for quickly determining whether or not a pupil sees well enough to do the ordinary reading which is required of him.

Poor Auditory Acuity

It is not known definitely to how great an extent poor hearing may be a casual factor in producing retardation in reading. A study by Bond[9] showed that among elementary-school pupils partly deaf children were severely handicapped in classes where phonetic methods were stressed. Pupils who are suspected of being hard of hearing should be given careful consideration, and every effort should be made to remedy any defects which may be found. As with the case of vision, there are a number of tests which can be used in appraising the hearing ability of pupils.

The Audiometer. There are several types of audiometers. Two of the best known are the Audivox 7B and 4D models.[10] The 7B audiometer is used for individual diagnosis, while the 4D audiometer can be used to measure the hearing sensitivity of as many as 40 individuals at one time.

The 4D Audiometer consists essentially of a three speed electric motor and turntable, a crystal pickup and a vacuum tube amplifier. It is similar to a portable phonograph except that the sound is heard through head receivers. There are facilities in the carrying case for carrying the phonograph records and Test and Master Sheets. The associated equipment,

[9] Guy L. Bond, *Auditory and Speech Characteristics of Poor Readers*, New York, Bureau of Publications, Teachers College, Columbia University, 1935.

[10] Produced and distributed by Audivox, Inc., 123 Worcester Street, Boston 18, Massachusetts. (This company is the successor to Western Electric Hearing Aid Division.)

ordered separately, includes Audiometer Receiver Trays as required, a Receiver Tray Case, capable of holding two trays of receivers, phonograph records, monitoring headset and holder, Hearing Charts and Master Sheets.

When the system is operating, the person being tested hears several series of two digit numbers. Each series begins at a high volume and then gradually diminishes. The weaker numbers may or may not be heard, depending upon the acuteness of hearing of the person listening. The listener writes down on the Test Sheet the numbers he hears and his "hearing grade" is determined by the completeness and accuracy of this score. Separate tests are made of each ear. Experience indicates that a hearing grade of 6 or 9 (6 or 9 decibels hearing loss), determined by this procedure may be considered the borderline between normal and impaired hearing.[11]

In Fig. 4 is presented the record blank which the pupil uses while taking the test.

Large school systems or clinics which have a great number of children to test or which are interested in experimental problems involving hearing can, no doubt, afford to own an audiometer. It provides the most accurate and reliable method of checking the hearing of a child. The average school, however, with its limited budget may be unable to procure such an instrument. In such cases, other types of hearing tests may be employed.

The Watch-tick Test. The watch-tick test has been successfully used in a number of clinics and schools in detecting individuals who are hard of hearing. An Ingersoll watch or other loud-ticking type which can be heard by the average ear at a distance of about forty-eight inches has often been used for this purpose. Other watches can be used if they are first standardized on groups of normal children.

The child must not see the watch. The test must be given in a quiet room and any watch not used in the test should be removed from the person of the examiner or the examined. The child stands sidewise in relation to the examiner with his finger in the ear not being tested. The tester, hiding the watch from the child by a card held at the side of the child's head in front of his ear, places the watch close to the ear and gradually

[11] Audivox 4D Speech Audiometer and Associated Equipment, Instruction Bulletin, No. 1033–19.

HEARING TEST CHART

FOR USE WITH WESTERN ELECTRIC NO. 4 TYPE AUDIOMETERS

NAME _____ AGE ____ SEX _____ **DO NOT MAKE**

ADDRESS _____ **ANY NOISE AS**

GRADE _____ SCHOOL _____ **IT WILL SPOIL**

DATE _____ HOUR _____ **THE TEST**

INSTRUCTIONS

1. WRITE YOUR NAME, AGE, SEX, ETC., IN THE SPACES ABOVE.
2. YOU WILL HEAR NUMBERS SPOKEN BY A PERSON WHO IS MOVING AWAY FROM YOU. THE VOICE WILL GET WEAKER AND WEAKER. LISTEN CAREFULLY AND WRITE AS MANY NUMBERS AS YOU CAN.

RIGHT EAR				HEARING GRADE	LEFT EAR			
1	2	3	4		5	6	7	8
				30				
				27				
				24				
				21				
				18				
				15				
				12				
				9				
				6				
				3				
				0				
				−3				

HEARING GRADE HEARING GRADE

TESTED BY _____ GRADED BY _____

HISTORY

1. DID YOU EVER HAVE AN ACHE OR PAIN IN YOUR EAR? _____ WHICH EAR? _____ WHEN? _____
2. DID YOU EVER HAVE A RUNNING EAR? _____ WHICH EAR? _____ WHEN? _____
3. DOES IT RUN NOW? _____
4. DO YOU EVER HAVE NOISES IN YOUR EAR LIKE BUZZING, HISSING, OR ROARING? _____
   WHICH EAR? _____ WHEN? _____
5. HAVE YOU HAD YOUR TONSILS OR ADENOIDS REMOVED? _____
6. WHO IN YOUR FAMILY DOES NOT HEAR WELL? _____
7. HAVE YOU EVER HAD A MASTOID OPERATION? _____
8. HAVE YOU A COLD NOW? _____
9. DO YOU HAVE A COLD OFTEN? _____

FIG. 4. PUPIL'S RECORD SHEET FOR USE WITH THE WESTERN ELECTRIC 4D AUDIOMETER

withdraws it horizontally until the child fails to hear. If the stop is at 15 inches, the amount of hearing acuity is 15/48. The examiner then reverses the test; commencing at a distance of 48 inches and bringing the watch slowly toward the child he stops as soon as the child hears the tick. The average of the two tests is then taken.[12]

According to common practice, if a pupil cannot hear a forty-eight-inch watch-tick at a greater distance than 16 inches, he is adjudged sufficiently hard of hearing to require special attention.

The Whisper Test. Another practical and simple test of hearing is known as the "whisper test." Instructions for administering the whisper test are minutely described in Whipple's Manual[13] as well as in several other sources.[14] The description of the whisper test as given by Newmayer is as follows:

> The child is placed in the corner of a room away from an open door or window, with his back toward the examiner to prevent his watching the movement of the lips. It is surprising how often a partly deaf child trains itself to interpret what one is saying by watching the lip movement. The child is instructed to repeat every word he hears and is then requested to close the left ear tightly with his left hand. The examiner, twenty feet distant, in a clear distinct low tone pronounces words for the child to repeat. If properly interpreted, the ear is recorded "normal." If not heard, the examiner walks toward the child speaking as before until he comes near enough to be distinctly heard. The hearing of the ear under examination is recorded "whispered voice, 5 feet," or whatever the distance may be. The left ear is similarly tested.[15]

Any of the tests which have been mentioned will detect those individuals who possess considerable degrees of hearing loss. The

[12] Beatrice McLeod, *Teachers' Problems With Exceptional Children, IV, Deaf and Hard of Hearing Children,* Pamphlet No. 54, Washington, D.C., U.S. Office of Education, 1934, p. 11.

[13] G. M. Whipple, *Manual of Mental and Physical Tests, Part I: Simpler Processes,* Baltimore, Warwick and York, 1914, pp. 200–213.

[14] S. W. Newmayer, *Medical and Sanitary Inspection of Schools: for the Health Officer, the Physician, the Nurse, and the Teacher,* Philadelphia, Lea & Febiger, 1924, pp. 273–274.

Paul Witty and David Kopel, *Reading and the Educative Process,* Boston, Ginn and Company, 1939, pp. 241–243.

[15] S. W. Newmayer, *op. cit.,* pp. 273–274.

teacher should not make any recommendations for specific treatment but should refer the individual involved to the proper medical authorities. In one Illinois city, where a careful survey was made by means of an audiometer, a number of interesting cases were brought to light among those pupils who were referred for medical attention. One pupil was found who had a marble in his ear, others had grains of wheat, some had pieces of cotton, and the hearing of others was impaired by large deposits of wax. The removal of these foreign objects, needless to say, had beneficial effects upon the pupils involved. Medical authorities are in a position not only to perform such minor tasks as removing foreign objects from ears, but also to perform other types of operations. In some instances hearing aids may be recommended.

Immature Eye-Movement Habits

Poor eye-movement habits have been suggested by some authorities as being a cause of reading difficulties. Such persons generally suggest that eye-training exercises be employed to remedy the condition after a diagnosis has indicated that this condition exists. In an earlier chapter, methods of studying eye-movement habits were discussed. The Ophthalmograph, the mirror test, and the Miles peephole test were all described in some detail. It is the contention of the present author, however, that eye-movement habits are symptoms rather than causes. Consequently, remedial work should not be directed to the eye movements themselves. Eye-movement records may be useful in appraising the reading maturity of a given individual, but they do not give in most cases much information regarding the basic causes of reading disability.

Low Academic Aptitude

Psychologists have not yet come to an agreement as to what intelligence is, nor is it known precisely to what extent it is hereditary and to what extent it is due to experience. However, those who have

worked with children who are retarded in reading have found certain intelligence tests useful in the total diagnoses made of such cases. If a pupil scores a high mark on an intelligence test and is at the same time deficient in reading ability, certain inferences may be drawn which would be impossible if these data were lacking. In the testing of intelligence of poor readers, it is desirable insofar as possible to use tests which do not involve reading, otherwise the results may merely confirm what is already known; namely, that the child does not read well. Many poor readers could answer the questions found in intelligence tests if they were aware of the content of the questions. There are available several intelligence tests which require little or no reading on the part of pupils.

The Revised Stanford-Binet Scale.[16] This test, which consists primarily of questions which are administered orally, is probably the most useful of those available for testing poor readers. There are, however, a few items on this test which call for some reading. When such questions are encountered, they should be omitted, and the credit divided among the other questions of the group. The test comes in two forms and can be administered to individuals ranging in age from two years up to the adult level. The chief handicap to using the *Revised Stanford-Binet Scale* lies in the fact that considerable study must be made before the test can be accurately and reliably administered. Many teachers have not had the training which is necessary for satisfactorily giving this test. Because of its superiority as a test of mental ability, school psychologists, teachers, and those who are specializing in remedial work would do well to master the technique of its administration.

Revised Beta Examination.[17] This is a revision of the Army-Beta examination which was used during World War I to test illiterates. It is a paper-and-pencil test, but involves no reading ability on the part of the person taking it. Practice exercises precede each of the

[16] All materials necessary for administering the Revised Stanford-Binet Scale of Intelligence may be secured from Houghton Mifflin Company, Boston.

[17] Published by the Psychological Corporation, 522 Fifth Avenue, New York City.

six subtests, which consist of drawing lines through mazes, crossing out objects which do not belong to a certain category, detecting likenesses and differences, and so on. The tests correlate highly for literate subjects with verbal tests of intelligence. Norms are provided which make it possible to secure intelligence quotients. The test is suitable for use with school children from the third-grade level up through high school.

California Test of Mental Maturity.[18] This test provides both a language IQ and a nonlanguage IQ. The language section of the test is similar to most group intelligence tests which are used in schools. The nonlanguage section is administered orally to the pupils by the examiner, and consists of subtests labeled Immediate Recall, Sensing Right and Left, Manipulation of Areas, Foresight in Spacial Situations, Opposites, Similarities, Analogies, Number Series, and Numerical Quantity. An added feature of the test is a series of exercises which appraise the vision, hearing, and motor coordination of the pupil. These tests of physical factors are not highly refined ones, but are valuable in identifying those pupils who have sensory difficulties which might interfere seriously with obtaining valid results on the test. The *California Test of Mental Maturity* has been designed for pupils at several grade levels. The Intermediate Series is for pupils in grades 7 to 10, while the Advanced Series is designed for individuals from grade 9 up to and including the adult level. There is relatively high correlation between the results secured on this test and those obtained from the *Revised Stanford-Binet Scale.*

In addition to the nonreading intelligence tests which have been mentioned, there are others which may be useful in given circumstances and with certain children. Among them are the *Chicago Nonverbal Test*, the *Arthur Performance Test*, the *Pintner-Paterson Performance Scale*, the *Pintner Non-language Intelligence Tests* and the *Wechsler-Bellevue Intelligence Test.* Most of these are used chiefly

[18] Published by the California Test Bureau, 3636 Beverly Boulevard, Los Angeles, California.

in clinics and by individuals who are highly trained in test techniques. In Plate 3 facing page 80 a teacher is shown administering a non-verbal type intelligence test to a sixth-grade pupil.

Left-Handedness

Some teachers as well as certain psychologists have reported left-handedness to be a frequent concomitant of retardation in reading. An Everett, Washington, schoolteacher, for example, who had kept hundreds of case records dating from 1910 makes the following comment:

> It soon appeared that two of the accompanying characteristics of the pupils with reading difficulties were left-handedness, and slow speech development. If a right-handed child had trouble, investigation invariably proved that other members of the family were either left-handed or mixed-handed.[19]

Professor Dearborn of Harvard University has expressed a similar point of view and has developed a theory to account for this alleged condition. He says:

> In the cases studied by the writer, now about twenty-five in number, at least a third have been left-handed. This is, of course, a somewhat larger proportion than would be expected in a group of otherwise normal or superior children such as all these cases are. The way in which left-handedness may possibly operate as an initial handicap in reading, just at it has been shown to be in writing, is suggested by the following observations. The outgoing movement of the left hand is from the center of the body towards the left. The left-handed person, possibly because he watches what his preferred hand does and thus establishes the habit, may show a preference for this same direction in his eye movements. . . . In tachistoscopic experiments there is a tendency for the left-handed to catch the end letters of words first, just as the right-handed commonly get the initial letters first.[20]

[19] Elizabeth Kempkes, "Handicaps in Reading," *Educational Administration and Supervision*, Vol. 24, February, 1938, p. 130.

[20] Elizabeth E. Lord, Leonard Carmichael, and Walter F. Dearborn, *Special Disabilities in Learning to Read and Write*, Harvard Monographs in Education, Series 1, Vol. 2, No. 1, Cambridge, Massachusetts, The Graduate School of Education, Harvard University, 1925, p. 3.

Since the time that Dearborn wrote the above passage, a number of studies have tended to show that left-handedness is not a particularly significant factor in reading disability. Haefner[21] found, for example, in a large school system that the reading ability of left-handed pupils equaled that of right-handed pupils when a controlled investigation was carried through. Other studies which tend to confirm this latter finding have been made by Ladd,[22] Fendrick,[23] Bennett,[24] and Jones.[25]

It might be objected that the reason such studies as Haefner's do not show greater disability among left-handers than right-handers is due to the fact that many children who are basically left-handed have been taught to write with their right hands, and are classed as right-handed at the time such a study is made. This situation might lower the reading average of the so-called right-handed group to a level of that attained by the left-handed.

Gates has summarized the data on left-handedness as a cause of reading difficulty as follows:

> It may be said that left-handed children in general do not show markedly greater difficulty in reading in general and no markedly greater tendency in particular to make reversal errors than right-handed; that of those who make reversal errors the percentage of left-handed is not much greater than in the population at large; and that among those subject to serious difficulties in reading the percentage is similar to that found among representative readers.[26]

[21] Ralph Haefner, *The Educational Significance of Left-Handedness,* New York, Bureau of Publications, Teachers College, Columbia University, 1929.

[22] M. R. Ladd, *The Relation of Social, Economic, and Personal Characteristics to Reading Ability,* New York, Bureau of Publications, Teachers College, Columbia University, 1933.

[23] Paul Fendrick, *Visual Characteristics of Poor Readers,* New York, Bureau of Publications, Teachers College, Columbia University, 1935, p. 50.

[24] Chester C. Bennett, *An Inquiry Into the Genesis of Poor Reading,* New York, Bureau of Publications, Teachers College, Columbia University, 1938, pp. 26–27.

[25] Mary M. Wilcox Jones, "Relationship Between Reading Deficiencies and Left-Handedness," *School and Society,* Vol. 60, October 7, 1944, pp. 238–239.

[26] Arthur I. Gates, *The Improvement of Reading,* Revised Edition, New York, The Macmillan Company, 1935, p. 345.

The greatest amount of evidence seems to indicate that teachers should not pay undue attention to the handedness of children who are in need of remedial work in reading. Left-handedness in and of itself is probably responsible for few cases of reading difficulty. However, since it may be an important factor in isolated cases, a thorough diagnosis might well include an appraisal of the pupil's handedness.

Testing for Handedness. Very few, if any, individuals can be classified as entirely right-handed or left-handed. Most individuals do some things with the right hand and some things with the left. There are, however, degrees of right-handedness and left-handedness. Johnson and Duke[27] have suggested that in studying the handedness of an individual the DQ (dextrality quotient) be used. The DQ is defined as the "percentage of the total achievement involved in any test of handedness which is to be credited to the right hand."

To determine a pupil's handedness then, it is necessary either to ask him a number of questions regarding the use of his hands or to have him perform a number of tasks involving his hands and note how often he uses his right hand, his left hand, or both hands together. Johnson and Duke's test consists of thirty-two activities such as pulling down a curtain, sharpening a pencil, picking up scissors, turning a page of a book, taking top off ink bottle, and pointing to a card. To find the DQ the following formula is used:

$$DQ = \frac{R + .5B}{N}$$

R equals the number of performances in which the right hand is used predominantly.

B equals the number of performances in which both hands are used with neither hand predominating.

N represents the total number of activities that the subject performs.

[27] Wendell Johnson and Darlene Duke, "Revised Iowa Hand Usage Dextrality Quotients of Six-Year-Olds," *Journal of Educational Psychology,* Vol. 31, January, 1940, pp. 45–52.

Since this formula can be used with any test of handedness, it is a very useful one.

Many sets of questions as well as activities to be performed have been listed which are valuable in measuring handedness. The following group of questions submitted by Hull[28] is typical:

1. Which hand holds a hammer while hammering?
2. Which hand holds the scissors while cutting?
3. Which hand distributes cards while dealing them?
4. Which hand spins a top?
5. Which hand winds a watch?
6. Which hand holds a tooth brush?
7. Which hand holds the knife in sharpening a pencil?
8. With which hand do you write?
9. Which hand cuts with the knife while eating?
10. With which hand do you draw or sketch a picture?
11. Which hand throws a ball?
12. Which hand holds a tennis racquet?

When using such a list of questions to determine handedness, it is much better to have the pupil perform the acts rather than to answer the questions from memory. Many individuals do not know for sure which hand they employ in such situations, until they try. A longer list of questions purporting to test handedness has been given by Witty and Kopel.[29]

Mixed Hand-Eye Dominance

Just as people are right-handed or left-handed so they are in general right-eyed or left-eyed. The majority of right-handed individuals are right-eyed, and the majority of left-handed individuals are left-eyed.[30] A rather widely accepted theory holds that when the right hemisphere of the cerebrum of an individual is more highly developed than the left, it exerts a dominating influence so that he will

[28] C. J. Hull, "A Study of Laterality Test Items," *Journal of Experimental Education,* Vol. 4, March, 1936, p. 290.

[29] Paul Witty and David Kopel, *Reading and the Educative Process,* Boston, Ginn and Company, 1939, pp. 313–315.

[30] M. B. Eyre, "Studies in Eye, Hand, and Foot Preferences, Part I, Introduction," *Journal of Juvenile Research,* Vol. 22, April, 1938, pp. 109–114.

tend to be left-handed, left-eyed and left-footed. Conversely, if the left side of the brain is more highly developed, the individual will tend to be more adept with his right hand, right eye, and right foot.[31] This belief is partly due to the established fact that the nerve centers on the right side of the brain control movements on the left side of the body and vice versa.

When an individual is right-handed and at the same time left-eyed, or left-handed and right-eyed, a condition of mixed dominance is said to exist. Such a condition is held by some authorities to result in cerebral confusion which may in certain instances contribute to reading disability.[32] Those who hold this viewpoint frequently consider it desirable to change a left-handed child over to the use of his right hand when it has been demonstrated that he is right-eyed, or to train a right-handed child to use his left hand when it has been found that he is left-eyed. At least one case seems to have benefited by such a procedure.

This boy of twelve years had progressed up to third grade level in reading in two years, but could not improve beyond that point. The history indicated that he had preferred the left hand and his first teacher had forced him to write with his right hand. All tests indicated preference for left eye, ear, and foot. The staff agreed to change the preferred hand if possible. It was discussed with the boy and the idea "sold" to him. Immediately he began to learn to write with his left hand. After a day or so it was not necessary to remind him to use his left hand. His reading improved a grade in six weeks and in three months he wrote better with the left hand than he ever had with his right hand.[33]

However, the evidence is conflicting as to whether mixed hand-eye dominance is a contributing factor in reading disability. Some

[31] Charles H. Judd, *Educational Psychology*, Boston, Houghton Mifflin Company, 1939, pp. 81–82.

[32] W. F. Dearborn, "The Nature of Special Abilities and Disabilities," *School and Society*, Vol. 31, May 10, 1930, pp. 632–636.

S. T. Orton, "Some Studies in the Language Function," *Proceedings of the American Association for Mental Deficiency*, Vol. 39, 1934, pp. 614–633.

Margaret A. Stanger and Ellen K. Donohue, *Prediction and Prevention of Reading Difficulties*, New York, Oxford University Press, 1937, pp. 3–33.

[33] Helen M. Robinson, "Treatment of Severe Cases of Reading Disability," *Journal of Educational Research*, Vol. 32, March, 1939, p. 533.

studies have presented data which seem to indicate that such is the case, but others even more numerous have shown that there is little if any connection between mixed dominance and reading disability.[34]

Despite the uncertainty which exists on this particular issue it is often desirable to study the handedness and eyedness of a given pupil. Strong emotional tensions have sometimes been developed by children who have been changed from their preferred left hand to major use of the right hand. Furthermore, there is evidence that left-eyed or left-handed children may in some instances exhibit a tendency to read words from right to left instead of in the customary way. A knowledge of a child's hand and eye preferences might, under such circumstances, not only be of value in properly understanding his case, but also be useful in planning appropriate remedial exercises. Methods of ascertaining handedness have already been suggested. Procedures for determining eyedness will now be described.

Determining Eyedness. There are several methods that can be employed for testing eyedness. One method consists in having the pupil sight with both eyes at some distant object (ten or twenty feet). The arm is extended directly in front of the body with the forefinger pointing at the object. While sighting with both eyes, the pupil should close his left eye. If his finger and arm are still in line with the object, he is right-eyed. If the arm and finger swing out of line with the object, he is left-eyed. A further check may be secured by having the pupil close his right eye while sighting with both eyes. If the object is still in direct line, he is left-eyed; if the arm and finger move out of line with the object, he is right-eyed.

Scheidemann[35] has presented a test of eyedness which can be mounted on cardboard. This test, which is somewhat more reliable

[34] One very careful study which shows no relationship to exist between mixed hand-eye dominance and reading disability is Phillip W. Johnson's *The Relation of Certain Anomalies of Vision and Lateral Dominance to Reading Disability,* Monographs of the Society for Research in Child Development, Vol. 7, No. 2, Washington, D.C., Society for Research in Child Development, 1942, pp. 136–147.

[35] Norma V. Scheidemann, *The Psychology of Exceptional Children,* Boston, Houghton Mifflin Company, 1931, p. 174.

than the sighting test which was just described, is reproduced in Fig. 5. It is suggested by Scheidemann that these directions be glued upon a cardboard and that the circle in the center be cut out. However, if the directions for the test of eyedness are typed on a sheet of paper and then pasted on cardboard, it will prevent the mutilation of the book and the results will be equally effective. For best results the card should be held before the face with both hands, and in

cut here

TEST FOR EYEDNESS

Directions

1. Place a small object (bit of crumpled paper or a bright button) upon the floor or table.
2. Hold this card steady at about 15 or 20 inches from your face.
3. With both eyes open, look at the small object through the hole in this card.
4. Without moving this card, close the right eye. Can you still see the small object? If you cannot, you are right-eyed.
5. Without moving this card, open the right eye and close the left eye. Can you still see the small object? If you cannot, you are left-eyed.

When testing small children, cover the eyes alternately for them.

For distant sighting determine some small object, as tip of flagpole, tree on a horizon, etc.

For a child reticent in speaking, permit the card to be shifted to accommodate each eye individually. If the child shifts the card to the left when using his left eye, he is right-eyed. If he shifts the card to the right when using the right eye only, he is left-eyed.

FIG. 5. A TEST OF EYE DOMINANCE

such a manner that the hole in the card will be equidistant from the two eyes.

Other tests of eye preference have been developed by Miles,[36] Crider,[37] Lund,[38] and Jasper and Raney[39] which can also be used if increased reliability is desired.

Emotional Factors

Emotional factors are probably more frequently associated with disability in reading than are the physical factors which have been mentioned earlier. Of course, it must be realized that physical conditions may often be the basic cause of an emotional condition. A child who is left-handed may become quite emotional under constant pressure to change to the other hand. Failure and frustration are also major causes of emotional behavior. In fact, emotion has sometimes been defined as a "disorganized response, occurring when the individual is frustrated or baffled."[40]

Numerous psychological studies[41] have clearly shown the deleterious effect of frustration upon learning. A child who has met with initial failure in reading frequently develops an emotional attitude toward reading which hinders further progress. The sight of a book or the mention of the word *reading* has been known to cause certain individuals to become tense and uncomfortable. Emotional disturbances may also have their genesis outside the school. Insecurity in the home, living with parents who are neurotic, overprotective, or overambitious for their children, puts a child in an emotional con-

[36] W. R. Miles, "Ocular Dominance in Human Adults," *Journal of General Psychology*, Vol. 3, July, 1930, pp. 412–430.

[37] Blake Crider, "A New Test of Eye Dominance," *American Journal of Psychology*, Vol. 49, October, 1937, pp. 669–670.

[38] F. H. Lund, "The Monoptometer: A New Device for Measuring Eye-Dominance," *American Journal of Psychology*, Vol. 44, January, 1932, pp. 181–183.

[39] H. H. Jasper and E. T. Raney, "The Phi Test of Lateral Dominance," *American Journal of Psychology*, Vol. 49, July, 1937, pp. 450–457.

[40] S. L. Pressey, J. E. Janney, and R. G. Kuhlen, *Life: A Psychological Survey*, New York, Harper & Brothers, 1939, p. 564.

[41] H. D. Carter, "Emotional Correlates of Errors in Learning," *Journal of Educational Psychology*, Vol. 27, January, 1936, pp. 55–67.

dition which may have an effect upon his progress in reading. Sherman has described the case of a boy whose schoolwork seemed to have suffered because of unwholesome conditions in his home.

A twelve-year-old boy was referred for treatment because of his poor school work and his inability to adjust to the regulations of the school. When he first entered the Orthogenic School of the University of Chicago, he was antagonistic to all persons in authority and especially to the teachers. He verbalized his disinterest in school work and a belief that reading was "all the bunk." He saw no reason why he should learn to read because he was planning to obtain work on a ranch. On several occasions he destroyed his books and on a number of other occasions reacted with temper tantrums when he was required to attend to his school work. In addition, he showed some neurotic symptoms, apparently on the basis of his experience in a tense household and with a neurotic mother. Progress in reading was exceedingly slow, and it was difficult to find a basis of motivating him to greater effort. It was only after a long period of psychological and psychiatric treatment that he was able to accept his future development. Because of his intense frustrations to immediate or anticipatory failure, a long period of treatment was directed toward eliminating his reactions of frustration to situations in which he did not have immediate success.[42]

In cases where an emotional condition has existed prior to the reading disability it is most important that a careful study of the individual be made before a direct attack is launched upon the reading problem. A study of the pupil's entire environment may reveal what factors are responsible for his emotional condition. The complexity of the personal problem may at times be so great that the assistance of a trained psychiatrist is needed.

However, in those instances where failure in reading has contributed to a negativistic attitude toward reading, success experience in reading is the best method of ameliorating the situation. Every pupil has a specific attitude toward reading. He either likes it, is indifferent toward it, or dislikes to engage in the activity. Until a positive reaction on the part of pupils toward reading is obtained, little or no progress can be expected. Remedial work which proceeds

[42] Mandel Sherman, "Emotional Disturbances and Reading Disability," *Recent Trends in Reading*, Supplementary Educational Monographs, No. 49, Chicago, The University of Chicago, November, 1939, pp. 133–134.

in defiance of this principle can only add to the pupil's emotional problem and leave him more maladjusted than before.

Lack of Interest

If a pupil is interested in an activity, he is likely to spend time on it. Pupils who are interested in reading, read many books. Through wide reading, new interests are developed. The pupil who has no interest in reading reads few, if any, books. Hence his interests remain limited and as time goes on his retardation becomes greater and greater. The fundamental reason why many pupils do not acquire greater proficiency in reading is because of the lack of interest which would lead them to do considerable reading. Why is it that many pupils are lacking in such an interest? It has already been mentioned in another connection that an unfortunate initial experience in learning to read may so color one's attitude toward reading that he will exhibit a negative reaction toward all books and reading materials. Another explanation for lack of interest in reading is that the pupil fails to see how reading will benefit him personally. He does not realize that it will satisfy certain of his basic needs in a way that no other experience can.

It is most important that the teacher of remedial reading at the outset appraise the interests of each pupil. This can be done by use of an interest inventory or through personal conference. It is a rare individual who is not interested in something. If a pupil can be made to realize that through reading some of his curiosities and basic desires can be satisfied, a big step will have been taken toward the removal of his disability. Hartmann has stated that "the basic rule is to begin with the learner's 'native' interests so far as these can definitely be determined, or at least with those he is known to possess at the beginning of any unit of learning, and to offer him experiences that have some immediate connection with them."[43]

The problem of how to develop an interest in an activity which at first is uninteresting is a very important one in education. Thorndike

[43] George W. Hartmann, "Interest, Attitudes, and Ideals," *Educational Psychology*, Third Edition, Edited by Skinner, New York, Prentice-Hall, Inc., 1951, pp. 421–422.

has suggested that the way to do this is by following the fundamental rule of "practice with satisfaction." If a pupil receives satisfaction in his reading he will become more and more interested in it. Whenever an annoying activity is imbedded in a satisfying context there is a tendency for the annoying activity to lose its distastefulness and to take on the satisfying qualities of the context of which it is a part.

A development of an interest in reading on the part of the poor reader is a major task of the teacher of remedial reading. There are at least three important points which must be kept in mind if this goal is to be reached. They are (1), provide reading matter which is on the pupil's level of ability (material which he is able to read); (2), the materials must not only be easy to read, but should be worthy of being read, should be enjoyable, and should help satisfy the pupils' personal needs; (3), the problem approach in teaching should be used whenever feasible. The pupil who is working on a problem of vital interest to him will often have to do some reading in the process of solving his problem. Such reading will be highly motivated and should lead to an expansion of his reading interests.

A teacher of remedial reading in an Evansville, Indiana, school shows in the following quotation how she obtains an interest in reading on the part of her disinterested pupils.

> My first objective is to convince every one of the youngsters that he really likes to read. Whenever anyone makes a statement to the contrary I reply, "That is only because you have never got hold of the right book or magazine. You are interested in *something*, and there are fascinating things to read about that particular subject." I try by every means to find out what those interests are. If the pupils do not tell me directly, I ask for a paragraph to be written in class on subjects such as these: "What I Would Do with a Hundred Dollars," "What I Would Do Tomorrow if We Were Given a Holiday," "How I Would Like to Earn My Living if I Could Have the Necessary Training to Go into That Kind of Work." After I have learned what the dominant interests of a pupil are I make a great effort to get really attractive books on those subjects so that I myself may put them into the hands of the pupil.[44]

[44] Glenn Myers Blair, "Remedial-Reading Programs in Senior High Schools," *The School Review*, Vol. 49, January, 1941, pp. 36–37.

Meager Experiential Background

The experiential background of the pupil is a factor too often neglected in diagnosing the cause of the ineffective reading. If a pupil has not had experiences in the area about which he is reading, he is likely to understand very little. For example, a pupil who reads about a game of lacrosse but who has never played such a game or seen anyone play it will not understand much of what he reads. A student reading a book on contract bridge without ever having played with cards, might know what all the words mean, yet fail to get any idea of what is being discussed. Many pupils have had the most meager types of experience. They have not "been anywhere" or have not "seen anything." A young man who has been to China will get much more out of a book dealing with Chinese life and customs than one who has spent his entire life inside the borders of a midwestern county. Teachers should realize that these backgrounds are of vital importance to successful comprehension in reading.

Whenever a pupil is found who lacks the experiential background for successful reading in a given area, the school should do all it can to extend directly the pupil's experience. Unless this is done it is too much to expect that he will be able to comprehend what he reads.

Of course, it is possible to enrich a pupil's experience vicariously, as well as through direct experience. This can be done by giving the pupil simple reading material in a given area, which will provide a background for more complex materials. Reading has been defined in various ways. But one of the most helpful definitions is that "reading is bringing meaning to the printed page." If a pupil has nothing to bring to the page it is certain that he will take nothing away. If a pupil has not had the appropriate type of experiences, the symbols on a page will not bring up many ideas. The whole problem of reading readiness is involved here. A pupil is not ready to read given materials until his previous experience has provided him a proper background for thinking about and interpreting the materials which he is to read.

Lack of Reading Experience

In the last few pages many possible causes of retardation in reading have been listed and discussed. The one now to be considered is perhaps the most significant of all. Unless a pupil has read considerably it is inevitable that he will be deficient in reading. Poor readers invariably are individuals who read little. There is no way that a person can become a good pianist without practicing on a piano; likewise an individual never becomes a good bowler without bowling, or a good basketball player without playing basketball. Let us suppose, for example, a given boy has no skill whatsoever in playing basketball, and we set out to diagnose the case—to find out why he does not perform better in this field of athletics. We might start by checking his vision, his hearing, his intelligence, hand and eye preferences, emotional factors which may be involved, and his interest in basketball. But it is most likely that when all is said and done it will be found that the reason that he is not a better player is that he has never played much basketball. Of course, it is possible that some of these factors which have been mentioned may have entered into his decision not to play basketball. But if some way could be found to get him to play basketball it is very likely that his ability would increase.

Similarly, no one has ever learned to read without reading. It is only through a graduated succession of reading experiences that a child develops skill and capacity for dealing with reading materials. John Cotton Dana[45] had twelve famous rules for the improvement of reading. They were as follows:

1. Read
2. Read
3. Read some more
4. Read anything
5. Read about everything
6. Read enjoyable things
7. Read things you yourself enjoy
8. Read, and talk about it
9. Read very carefully—some things
10. Read on the run—most things
11. Don't think about reading, but
12. Just read

[45] Frank Kingdon, *John Cotton Dana: A Life,* Newark, The Public Library and Museum, 1940, p. 123.

At least two important conditions must be met for pupils to follow these rules. First, they must develop a permanent and absorbing interest in reading. Second, they must be provided with an abundance of books, magazines, and other reading materials. The greater the variety, both in range of difficulty and in content, the more useful will such materials be. Specific attention will be given to the problem of supplying suitable reading materials for pupils in a later chapter.

Other Causes

Besides the factors contributing to disability in reading which have been mentioned thus far, there are many others. A few of them which the teacher of remedial reading should be on the alert to detect will be briefly mentioned.

A poor sight vocabulary may be one such cause. A pupil in the upper grades who cannot, for example, instantly recognize at sight the 220 words of Dolch's basic sight vocabulary[46] possesses a handicap which makes reading practically impossible. The 220 words of the Dolch list make up from 50 to 75 per cent of all ordinary reading matter. Consequently, no time should be taken for sounding out such words—they should be recognized at a glance.

To some teachers it might seem inconceivable that a pupil could reach the upper grades or high school level without having mastered such a basic list of words. However, pupils are occasionally found who do not possess even this meager stock of words as a reading vocabulary. A sixteen-year-old boy in the Sophomore class of high school, when brought to the Educational Clinic at the University of Illinois, failed to recognize twenty-two of them. Following are the mistakes which he made:

smile for small	jump for just
with for which	our for over
come for can	were for where
thank for think	my for me
sew for saw	went for want

[46] E. W. Dolch, "A Basic Sight Vocabulary," *The Elementary School Journal*, Vol. 36, February, 1936, pp. 456–460.

said for say	my for many
ate for eat	my for may
get for got	you for your
know for now	soon for some
now for no	shawl for shall
on for own	hunt for hurt

Further study of the case indicated that although he did not know these words, he could learn them. After a few trials he was able to recognize all of them. Here was a boy trying to read books dealing with general science, history, and other advanced topics at the high-school level who could not even recognize at sight some of the simplest words in the English language.

Lack of training in phonics is another possible cause of failure to make suitable progress in reading. Very severely retarded readers should probably be given some such test as the *Gates Reading Diagnosis Test*[47] which checks, among other things, how a pupil recognizes words. Any pupil who is unable to recognize words by the phonetic method will be detected by such a test and appropriate remedial exercises can be initiated.

Many of the reading tests which were mentioned in Chap. 2 are useful in locating particular reading weaknesses of pupils which interfere with further progress. Thus the *Gates Basic Reading Test* for grades 3 to 8[48] measures four types of reading ability. Type A, Reading to Appreciate General Significance; Type B, Reading to Predict the Outcome of Given Events; Type C, Reading to Understand Precise Directions; Type D, Reading to Note Details. An individual may be strong in his ability to read one of these types of material, but be weak in another. In like manner, such instruments as the *Iowa Silent Reading Tests* or the *California Reading Tests* point out various weaknesses in the pupil's reading equipment which may lie at the bottom of his trouble. When pupils are found who are particularly low in one or more of the skills measured by such tests,

[47] Published by the Bureau of Publications, Teachers College, Columbia University, New York City.

[48] Published by the Bureau of Publications, Teachers College, Columbia University, New York City.

appropriate reading materials can be selected or activities arranged which are designed to correct the weaknesses discovered.

Other factors which have been found to be associated with reading difficulties are glandular disturbances, low vitality, and physical diseases. Bizarre theories which possess little or no validity have sometimes been suggested as causes of reading disability. One writer held that the nonreader is a biological anomaly, and others have claimed that congenital word-blindness is a frequent cause. The fact that there is a greater incidence of reading disability among boys than among girls has led some to believe that reading disability is inherited as a sex-linked characteristic. This, however, is an unproved assumption. The probability is that since girls mature more rapidly than boys, they are more ready for initial reading instruction and are advanced over the boys at later stages of development. There is also a possibility that girls, because of certain cultural factors, develop greater interest in reading while boys' interests oftentimes run in other channels.

Summary

A careful study should be made of each pupil who is selected for remedial work in reading in an effort to locate the cause of his difficulty. Pupils fail to learn to read for a variety of reasons. "Shotgun" methods of teaching which are not based upon a careful diagnosis of each individual may do more harm than good.

Some of the factors that may lie at the bottom of a given pupil's special inability in reading are: poor physical condition, sensory defects, unsatisfactory home conditions, low intelligence, left-handedness, mixed hand-eye dominance, emotional tension, lack of interest, meager background of experience, and lack of reading practice.

One of the chief and most obvious of these causes is *lack of reading practice*. Good readers invariably read widely while poor readers seldom read anything. In order to be a good tennis player, one must play a great deal of tennis; in like manner, to become a skillful and effective reader, one must do much reading. A sure cure for retardation in reading is to get the pupil to read. But why is it one pupil

reads extensively and another avoids reading entirely? A careful investigation may reveal that physical or emotional factors are responsible for this difference. Or it may be that a difference in home conditions is the crucial factor—one pupil coming from a home where he is surrounded with excellent reading materials and the other from a home where such materials are nonexistent. Or it may be due to some other cause. *Lack of interest* is a most frequent concomitant of poor reading performance. The diagnosis should, therefore, attempt to discover why a pupil has no interest in reading. It should also try to discover any basic nonreading interests the pupil may possess which may be used as the foundation for developing reading interests.

Poor visual acuity may be checked by the teacher with the aid of a Keystone Visual Survey Instrument, the Eames Eye Test, a Snellen Chart, or the American Medical Association Rating Reading Card. Auditory deficiency may be detected by using an audiometer, the watch-tick test, or the whisper test. The intelligence of retarded readers may best be measured by means of tests of a "nonreading" type, the most useful being the Revised Stanford-Binet Scale, the Revised Beta Examination, and the California Test of Mental Maturity.

The handedness of an individual may be determined by having him perform a variety of tasks requiring the use of his hands and then computing his dextrality quotient (DQ). Eyedness can be tested by means of simple sighting devices such as have been described in this chapter. Attitudes, interests, and reading habits may be determined by means of questionnaires and inventories as well as by direct methods of observation. Abnormal glandular conditions, nervous disorders, and other physical ailments should be diagnosed by individuals with special medical training and experience.

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PLATE 3. Testing a Pupil with a Non-Verbal Intelligence Scale

PLATE 4. Teacher Recording the Types of Errors a Pupil Makes When Reading Orally

PLATE 5. This Pupil Is Learning the Dolch Basic Sight Vocabulary by Utilizing a Word Wheel Which His Teacher Has Constructed

PLATE 6. One Pupil Assisting Another Pupil Increase Her Speed of Reading Using the Push Card Method

Chapter 4

Techniques for Providing Remedial Treatment

General Technique

The type of remedial treatment to be given a pupil should depend upon the character of the diagnosis which is made. If physical factors seem to play a part in the disability, medical attention should be provided at the outset. Under this heading would come defects of vision and audition, malnutrition, focal infections, adenoids, abnormal glandular conditions, and nervous conditions. About 95 per cent of eye defects can be corrected either in whole or in part by means of glasses.[1] Eye-training exercises which the specialist can administer are helpful in correcting additional defects such as poor fusion. Other defects of a sensory or physical nature often respond well to therapeutic treatment. In any event, remedial work in reading should not be begun until the physical condition of the pupil is above question.

If the diagnosis should reveal that the pupil has low mental ability as measured by nonreading as well as reading types of intelligence tests, procedures should be followed which take this fact into account. Among other things, the teacher will have to go more slowly and have to depend more than usual on concrete units of experience

[1] S. W. Newmayer, *First Aids in Reading Difficulties,* Philadelphia, North American Printing Company, 1940, p. 144.

in developing the meaning vocabulary. A book by Kirk[2] entitled *Teaching Reading to Slow-Learning Children* gives suggestions for the teaching of reading to pupils who are extremely retarded mentally. The mentally retarded pupil, for example, is usually lacking in any desire for recreational or leisure-time reading due to the fact that he has had to read books that were too difficult for him. Kirk suggests in this case that the teacher follow such procedures as these:

1. Discuss books, where to find them, and some of the fascinating information they contain.
2. Abolish the book-report method. Allow the child to read without requiring him to account for what he reads. Book reports destroy interest in reading.
3. Aid the child in selecting interesting books that are easy for him to read. Stories and classics with reduced vocabulary are designed especially for this type of child.
4. Motivate reading along the lines of the child's interest through projects or units of work. For older children the activity method has proved concrete and effective.[3]

When it is found that poor home conditions are contributing causes of a pupil's reading disability, every effort should be made to ameliorate the situation. A skillful teacher can, through suggestions to the parents, sometimes assist in bringing about changed conditions in the home. In extreme cases the removal of the pupil to a new home may prove beneficial.

In Chap. 3, suggestions were given for dealing with pupils who are emotionally unadjusted, who lack interest in reading, who are deficient in general experience backgrounds, and who suffer from lack of reading practice. The teacher who is interested in remedial procedures should reread that chapter. The therapeutic devices which were there discussed in connection with the causes of reading disability, will not be repeated here.

In every case of reading disability, the data which are gathered during the diagnosis should be weighed and utilized in the planning

[2] Samuel A. Kirk, *Teaching Reading to Slow-Learning Children,* Boston, Houghton Mifflin Company, 1940.
[3] *Ibid.,* p. 183.

of the remedial program. Because of the fact that every pupil differs in some significant respect from every other pupil it is impossible to plan in advance a set remedial program which will be effective under all conditions. The work must be geared to what is found out about each pupil. There are, however, some basic principles which have universal application. A few of them are as follows:

1. *Begin where the pupil is.* One of the greatest mistakes made in all phases of teaching is in assuming that a pupil knows more than he does. New material or advanced work cannot successfully be introduced until the pupil has developed a readiness for it.

2. *The pupil should be frequently informed of his progress.* By means of charts, graphs, and records, the improvement which is made should be clearly shown. This procedure provides a powerful spur to learning.

3. *The work must be real and vital to the pupil.* Mere exercises which do not relate to the basic life goals of the pupil will be ineffective. The personal needs of the pupil must be met through the activities which are engaged in.

4. *Definite satisfaction on the part of the pupil should accompany the work.* According to Thorndike's recent work on learning, "practice with satisfaction" accounts for rapid learning.

5. *Abundant and varied exercises and activities should be provided.* According to W. I. Thomas a desire for new experience is basic to all human beings.

Despite the fact that specific remedial procedures cannot be given in advance of specific diagnoses, general procedures and techniques which have been found to be successful under various circumstances should be suggestive and helpful to the teacher with limited experience in remedial teaching. Consequently, in the remainder of this chapter attention will be given to a few general procedures which may be used in improving specific reading weaknesses of pupils.

Improving Vocabulary

If test results and other data point to the fact that a pupil or group of pupils possess disproportionately poor reading vocabularies,

special attention might well be given to a vocabulary-building program. Such a program will generally pay big dividends so far as

TABLE V

A Basic Sight Vocabulary of 220 Words[4]

a	clean	green	many	run	together
about	cold	grow	may	said	too
after	come	had	me	saw	try
again	could	has	much	say	two
all	cut	have	must	see	under
always	did	he	my	seven	up
am	do	help	myself	shall	upon
an	does	her	never	she	us
and	done	here	new	show	use
any	don't	him	no	sing	very
are	down	his	not	sit	walk
around	draw	hold	now	six	want
as	drink	hot	of	sleep	warm
ask	eat	how	off	small	was
at	eight	hurt	old	so	wash
ate	every	I	on	some	we
away	fall	if	once	soon	well
be	far	in	one	start	went
because	fast	into	only	stop	were
been	find	is	open	take	what
before	first	it	or	tell	when
best	five	its	our	ten	where
better	fly	jump	out	thank	which
big	for	just	over	that	white
black	found	keep	own	the	who
blue	four	kind	pick	their	why
both	from	know	play	them	will
bring	full	laugh	please	then	wish
brown	funny	let	pretty	there	with
but	gave	light	pull	these	work
buy	get	like	put	they	would
by	give	little	ran	think	write
call	go	live	read	this	yellow
came	goes	long	red	those	yes
can	going	look	ride	three	you
carry	good	made	right	to	your
	got	make	round	today	

[4] E. W. Dolch, *A Manual for Remedial Reading*, Second Edition, Champaign, Illinois, The Garrard Press, 1945, p. 438. These 220 words have been printed on cards, one word to each card. A packet of these cards together with an instruction manual for their use may be secured from the above-mentioned publisher.

improvement in reading is concerned, for it is only when pupils are equipped with a sufficient stock of concepts and word meanings that the activity of reading is made possible.

Sight vocabulary. Before starting a pupil on any type of remedial reading program, it is important to ascertain whether or not he possesses the ability to recognize a minimum number of words at sight. It is very discouraging for a pupil to have to stop and decipher every word that he encounters. In Table V are listed the 220 common words which make up more than 50 per cent of all ordinary reading matter. If a pupil in the upper grades or high school should be found who does not recognize *instantly* each of these 220 words, special effort should be made to teach them to him. This basic list is composed of prepositions, conjunctions, pronouns, adjectives, adverbs, and the most common verbs, and thus are words which will be encountered regardless of what type of subject matter the pupil eventually reads. An average third-grade pupil should be able to recognize all of the words.

As a method of teaching this basic sight vocabulary, Dolch[5] suggests the possible use of what he calls a "word game." The individuals participating are two pupils—one is designated the "player" and the other the "helper." The "player" is a pupil who needs to learn the words, while the "helper" is a pupil who knows the words well. To play the game the 220 words must be typed or printed on cards, one word to each card. The rules are as follows:

1. Every day (or sometimes twice a day) have the player shuffle his cards, and then go over them rapidly, saying each word and handing the card to the helper. If the player gets the word right, the helper keeps the card. If the word is missed it is placed in a special pile on the desk.
2. This pile of cards representing unknown and miscalled words is then gone over, the helper saying each word as it appears while the player repeats the word after him. These cards are then shuffled back into the pack ready to be used at the next practice.
3. The number of errors made during each practice is carefully re-

[5] E. W. Dolch, *Instructions for the Basic Sight Vocabulary Cards,* The Garrard Press, Champaign Illinois.

corded on a chart so that the pupil may be kept well informed of his progress.

4. Practice is continued until the player can call all the words, instantly, for at least three consecutive practices.

The words of this basic sight vocabulary can also be taught by means of an instrument known as a "Flashmeter."[6] This quick-exposure device which can be attached to a regular stereoptican makes it possible to flash words, phrases, and sentences on a screen or wall for definite periods, ranging from one-seventy-fifth of a second to a full second. The 220 words of the Dolch list have been printed on slides especially prepared for use with this instrument.[7]

Wide Reading. Perhaps the most effective way to enlarge one's vocabulary is through wide reading. Meanings are easily acquired through context when one possesses a knowledge of enough familiar words to help him over those which are unfamiliar. Furthermore, the precise meaning of a word can, as a rule, only be determined by the setting in which it is found. Due to this fact, erroneous conceptions of what certain words really mean are often gained when they are learned apart from context. Isolated word study can also be wasteful of a pupil's time, because he is not gaining any experience in reading when he is engaged in such activity. Reading is more than just knowing the meaning of individual words. It is possible for one to know a great many words but still read poorly. Anyone who has undertaken the task of acquiring a reading knowledge of a foreign language can verify this fact. Frequently a student knows the meaning of every word in a foreign-language sentence, but is still unable to get its import. Such a condition generally results from studying words in isolation without spending much time on reading. What is said here is not to be construed as meaning that systematic word study should never be made a part of a vocabulary-building program. Such study has its place but it should remain supplementary and incidental to the activity of extended reading.

Use of the Dictionary. In connection with wide reading, the use

[6] The Flashmeter is manufactured by the Keystone View Company, Meadville, Pennsylvania.

[7] These may also be secured from the Keystone View Company.

of a dictionary can be helpful providing the pupil possesses some skill in reading (third-grade level or higher). Of course, all dictionaries are not suitable to use. The typical standard dictionary possesses a bewildering system of diacritical marks and abbreviations which only confuse the poor reader and tell him very little about a word he does not already know. In addition, he is very likely to acquire wrong meanings from such dictionaries. This is particularly true for those dictionaries which define words in terms which are more difficult to understand than the words themselves. Dictionaries that have been very successfully used with retarded readers are the *Thorndike-Barnhart Junior Dictionary*[8] and the *Webster's Dictionary for Boys and Girls*.[9] Other dictionaries which have been highly recommended by teachers of remedial reading are *The Winston Dictionary for Schools* and *The Winston Dictionary* (Advanced Edition).[10]

Before a pupil is given a dictionary and asked to use it, he should be given instructions on how to best secure information from it. Many of the mistakes which pupils make in using a dictionary could be avoided if some initial instruction and practice were given. The preface and introductory pages of a dictionary often give suggestions and advice which should be thoroughly read by both the teacher and the pupil. In *The Winston Dictionary* (Advanced Edition), for example, seven full pages are devoted to directions for the use of the book. After such material as this has been carefully studied, the teacher should administer tests of various types to see that the pupils have really mastered the techniques which have been described. A simple test such as the following might be useful in this respect.

Dictionary Test

1. Place in order the following words as they would appear in the dictionary: *abstract, abscess, actual, able, aster, archer, actuate, after,*

[8] Published by Scott, Foresman and Company, Chicago.

[9] Published by American Book Company, New York. The American Book Company has also prepared three workbooks to accompany this dictionary. These provided the pupil with excellent practice in how to use a dictionary.

[10] Published by John Winston Company, Chicago.

aggregrate, angora, avail, anoint, advocate, annual, answer, ancient, assume, atone, atavism, astronomy, asylum, atrocious, avoidance, artificial, amplitude, aggravation, accrue, arbitrary, aqueous, affliction.

2. In the following sentences, find the meaning in the dictionary of each italicized word, and write it down on the sheet of paper you are using for this test.
   a. The man *relinquished* his position.
   b. He was an extremely *illiterate* person.
   c. The young man was *penitent* when brought before the judge.
   d. The *competency* of the radio repair man was not doubted for a minute.
   e. The *innovation* did not prove successful.
   f. *Extraneous* materials were found in the book at many places.
   g. He desired to move to a more *salubrious* climate.
3. On what page or pages of *The Winston Dictionary* (Advanced Edition) would you find the following information:
   a. Flags of the leading nations of the world.
   b. A map of Australia.
   c. The population of Portland, Oregon.
   d. The meaning of the foreign phrase *fait accompli.*
   e. The meaning of the abbreviation *colloq.*
   f. The meaning of an abbreviation found in your textbook.
   g. Tables of weights and measures.
   h. The meaning of the prefix *anti.*
   i. The nationality of the explorer Amundsen.

Systematic Word Study. Wide reading can frequently be supplemented to advantage by a systematic program of word study. Pupils with special vocabulary difficulties as well as all pupils can be encouraged to make special study of the unfamiliar words they meet. There are many types of exercises which teachers may employ in this connection. Unless the work is highly motivated, however, there is a danger that interest will lag and the purpose of the study will be defeated. On the other hand, if judiciously used, exercises of the type listed on the next page can be extremely helpful in a vocabulary improvement program.[11]

[11] Genevieve Apgar, "Suggestions for Vocabulary and Sentence Building," *Ohio Schools,* Vol. 16, April, 1938, pp. 214–215.
Mary D. Reed, "Developing Word Mastery Skills," *Education,* Vol. 56, September, 1935, pp. 25–29.

1. Listing synonyms, antonyms, homonyms.
2. Finding substitutes for overworked words.
3. Pairing a word in one list with its meaning in another list.
4. Filling in blanks left in a paragraph with words from a given list.
5. Substituting specific terms for general terms.
6. Replacing slang terms by forms in good usage.
7. Making lists of words that belong to the same family—words that are built from the same root.
8. Arranging words under different headings when both words and headings are given.
9. Replacing underlined words in a sentence or paragraph with synonyms.
10. Listing words to describe a given object, such as Christmas tree, cold day, etc.
11. Keeping a word diary.
12. Having dictionary races.
13. Filling in blanks left in a given literary selection and then comparing with the original words used by the author.
14. Making a class word-calendar or a dictionary for the room.
15. Matching words in given columns, such as adjectives with nouns, verbs with nouns, verbs with adverbs.
16. Keeping a notebook of words, each word to be followed by an original sentence.
17. Choosing a picture and listing words appropriate for its description.
18. Requiring at least one new word in themes.
19. Finding substitutes for pet expressions (perfectly awful, etc.).
20. Making a collection of words from current materials, magazines, railroad folders, etc.

As an example of exercise 2 in the preceding list "finding substitutes for overworked words," one teacher singled out the word *interesting* which was being used too frequently in book reports.[12] Most of the pupils were writing, "It is an interesting book." She told the class that she would not accept another report that contained the word *interesting*. She told them they would have to find other words to express the same idea. The students set out to compose a list of five hundred words which could be used to describe books. The final list showed a variety of words that ranged from *fine*,

[12] Florence F. Goldstein, "An Interesting List," *The English Journal*, Vol. 26, January, 1937, pp. 48–51.

splendid, and *jolly* to *scintillating*, *plausible*, *sophisticated* and *bizarre*. The pupils were intrigued by this project from start to finish. It is scarcely necessary to point out the difference in results which the teacher obtained by this method over what would have been obtained if the words had been studied from a formal list.

Some teachers have the pupils bring to class, words which they come upon in reading, radio and television programs, movies, conversations, or formal talks. One plan calls for each pupil to master the words he has found, and on each Friday to explain them orally to the class. A class secretary takes down in a permanent list words that are deemed especially important by the teacher and pupils. At the end of the six-weeks period, the teacher mimeographs this combined list of words and gives each pupil a copy. The pupil then organizes a talk in which he uses as many of these words as possible. After the talk the other pupils are permitted to bombard the speaker with questions to test his understanding of the words used.[13]

Many other methods which have aroused interest on the part of pupils and which have resulted in vocabulary gains have been reported in the literature. In the Grover Cleveland High School in New York City, a unique vocabulary contest has proved most successful.[14] In Easton, Pennsylvania,[15] the teacher first goes through the various assignments which are to be read by the pupils and picks out the difficult words. These words are then mimeographed together with their appropriate meanings and given to the pupils one sheet at a time as the assignments are reached. Each pupil studies the list before he prepares his lesson.

Study of the Derivation of Words. In connection with vocabulary-building exercises, a limited amount of time may be usefully devoted to studying prefixes, suffixes, and the roots from which English words are derived. A pupil who knows the Latin word *mundus* is not very

[13] L. L. Dickey, "Enlarging the Student Vocabulary," *Ohio Schools*, Vol. 14, March, 1936, p. 95.

[14] Bella S. Turk, "Words Come to Life," *High Points*, Vol. 20, October, 1938, pp. 74–75.

[15] M. L. Howe, "Another Plan for Teaching Vocabulary," *The English Journal*, Vol. 28, March, 1939, pp. 223–224.

apt to be puzzled by the English word *mundane*. Likewise, a pupil who knows the meaning of the Latin word *pulcher* is much more apt to get the meaning of the English word *pulchritude* than would one who does not know the meaning of the Latin root. Smith[16] has given a list of ten Latin verbs and two Greek words which enter into the making of 2500 English words. They are as follows:

facio, do or make
duco, lead
tendo, stretch
plico, hold
specio, see, observe
pono, place
teneo, hold, have
fero, bear
mitto, send
capio, take, seize
logos, speech, word, reason, study, thought
grapho, write

A study by Stauffer[17] gives teachers a clue as to which prefixes to teach if they wish to use this approach in the building of vocab-

TABLE VI

Prefixes Occurring Most Often in the 20,000 Words of the Thorndike List

PREFIX	MEANING	FREQUENCY
ab	from	98
ad	to	433
be	by	111
com	with	500
de	from	282
dis	apart	299
en	in	182
ex	out	286
in	into	336
in	not	317
pre	before	127
pro	in front of	146
re	back	457
sub	under	112
un	not	378

[16] S. Stephenson Smith, *The Command of Words*, New York, The Thomas Y. Crowell Company, 1935, p. 67.

[17] Russell G. Stauffer, "A Study of Prefixes in the Thorndike List to Establish a List of Prefixes that Should Be Taught in the Elementary School," *Journal of Educational Research*, Vol. 35, February, 1942, pp. 453–458.

ularies. He investigated the prefixes found in the 20,000 words of *Thorndike's Teacher's Word Book.*[18] The results showed that 4922, or 24 per cent of these words have prefixes. Furthermore, 15 prefixes account for 82 per cent of the total number of prefixes found. In Table VI these fifteen prefixes are listed together with the number of times each appeared in the Thorndike list.

The teacher who is interested in the problem of vocabulary improvement should be acquainted with such books as the following:

Chase, Stuart, *The Tyranny of Words,* New York, Harcourt, Brace and Company.

Collins, Joseph V., *English Words of Latin and Greek Origin,* Stevens Point, Wisconsin, Worzalla Publishing Company.

Gilmartin, John G., *Gilmartin's Word Study,* Second Revised Edition, New York, Prentice-Hall, Inc.

———, *Building Your Vocabulary,* New York, Prentice-Hall, Inc.

Greenough, J. B. and G. L. Kittredge, *Words and Their Ways in English Speech,* New York, The Macmillan Company.

Hart, Archibald, *Twelve Ways to Build a Vocabulary,* Revised Edition, New York, E. P. Dutton and Company.

Myers, Edward D., *The Foundations of English,* New York, The Macmillan Company.

Roget, P. M., *Thesaurus of English Words and Phrases,* New York, Grosset and Dunlap.

Soule, Richard, *A Dictionary of English Synonyms,* Boston, Little, Brown and Company.

Steadman, J. M., *Vocabulary Building,* Atlanta, Turner E. Smith and Company.

Weekly, Ernest, *Words Ancient and Modern,* New York, E. P. Dutton & Company, Inc.

Word Study, a periodical, is published by the G. and C. Merriam Company and is sent free to all those who request it. It contains articles about words, suggestions to teachers of English, vocabulary exercises, and a column of questions and answers about words. A

[18] Published by Bureau of Publications, Teachers College, Columbia University, New York, 1932.

book entitled *Picturesque Word Origins*[19] which is also published by G. and C. Merriam Company is likewise of value in vocabulary study.

Methods of Attacking Unfamiliar Words

The poor reader often knows the meanings of more words than he can recognize in print and frequently has no technique for attacking such words. The teacher should, in such cases, give the pupil some work on phonics. By having a pupil work on a few new words it is easy to tell which elements of sounding he knows and which he does not. The little book entitled *Reading Aids Through the Grades*[20] gives many devices which the teacher may use in developing better sounding techniques on the part of the pupils. One such device for teaching letter sounds is as follows:

wh	What sound do you make when you blow out a candle?
r	What sound does the lion make when he roars?
sh	What sound does mother make when she doesn't want you to wake father?
ch	What sound do you make when you sneeze?
ow	What sound do you make when you hurt yourself? (au)
o ow	What sound do you make when you are surprised? (oh!)
oo	What sound does the wind make when it blows around the house?
s	What sound does the radiator make when steam is coming out?
gr	What sound does a dog make when he growls?
m	What sound do you make when you eat something very good?

Another very useful book which contains exercises for teaching sounds is *Remedial Reading Drills* by Hegge and Kirk.[21] An exercise which can be used with pupils who confuse the letters, *b*, *d*, and *p* follows on the next page.

[19] G. and C. Merriam Company, Springfield, Massachusetts.

[20] David H. Russell, Etta E. Karp, and E. I. Kelly, *Reading Aids Through the Grades*, New York, Bureau of Publications, Teachers College, Columbia University, 1951.

[21] Thorlief G. Hegge, Samuel A. Kirk, and Winifred D. Kirk, *Remedial Reading Drills*, Ann Arbor, Michigan, George Wahr, Publisher and Bookseller.

b–d–p

pad	dash	big	had
bell	dime	bit	bad
best	back	fed	pond
deep	boot	stoop	bend
did	cab	seed	bump
dam	rode	fob	bade
pool	hope	code	paid
peach	clap	tub	hope
cap	deep	pail	paint

In this manual just referred to, thirty-three drills are devoted to introductory sounds, twelve to combinations of sounds, and ten to advanced sounds. Other books which contain excellent exercises and directions for the teaching of phonics are *Eye and Ear Fun*,[22] *How to Teach Phonics*,[23] and *The Teaching of Sounding*.[24] Dr. E. W. Dolch of the University of Illinois has developed several very interesting games for the teaching of phonics which teachers will find useful. These include *Take* (for third grade and up), *The Syllable Game* (for fourth grade and up) and the *Group Sounding Game* (for third grade and up).[25] One of the cards for the *Group Sounding Game* is shown in Fig. 6.

Improving Speed of Reading

There is no reading skill which responds more readily to remedial treatment than that of speed. The speed at which an individual reads certain types of material is largely dependent upon habit. The extent to which rate of reading can be affected by appropriate practice is suggested in the following statement of Professor Bear, Director of the Reading Clinic at Dartmouth College. He says: "In the ten years that we have been helping Dartmouth students improve their

[22] Clarence R. Stone, *Eye and Ear Fun*, St. Louis, Webster Publishing Company.

[23] Lida M. Williams, *How to Teach Phonics*, Revised Edition, Chicago, Hall and McCreary Company.

[24] E. W. Dolch, *The Teaching of Sounding*, Champaign, Illinois, The Garrard Press.

[25] These games are published by The Garrard Press, Champaign, Illinois.

reading, I have seen few freshmen who read nearly as rapidly or efficiently as they should—and could after a little training. Year after year, our reading classes start off at an average of around 230 words

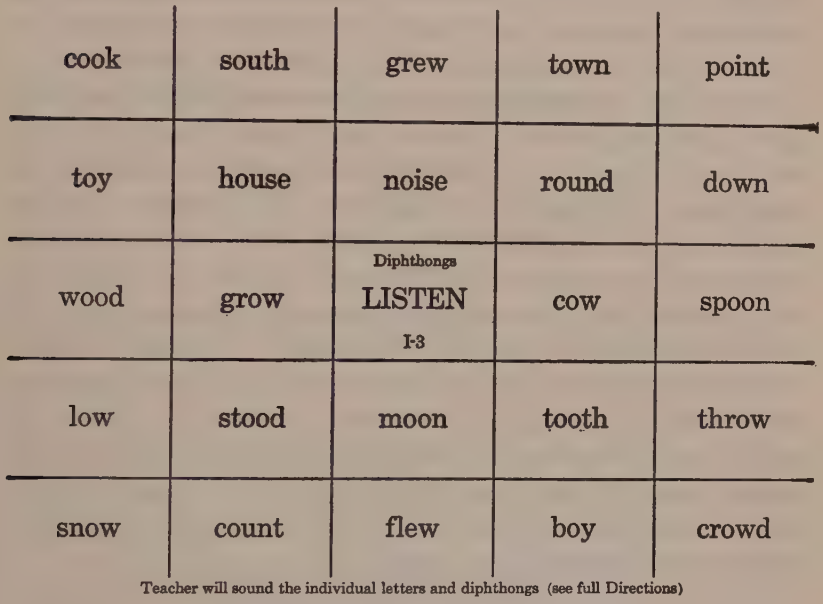

FIG. 6. ONE OF THE CARDS OF THE DOLCH GROUP SOUNDING GAME

a minute, and finish up a few weeks later at around 500 words a minute."[26]

Wide Reading. One of the best ways to develop speed in reading is to read a great deal of easy and interesting material. Slow readers are generally individuals who do not read voluminously. Their reading is often restricted to study-type materials which involves a great deal of concentration. Rapid readers on the other hand, are usually individuals who read widely. As a rule, students who major in English and social studies read more rapidly than those who major

[26]Robert M. Bear, "Speed While You Read," *The American Magazine,* Vol. 132, No. 3, September, 1941, pp. 24–25.

in such fields as mathematics and science,[27] because greater opportunities are provided in the former fields for wide and extensive reading. The writer knows of an individual who can read an entire book of 1200 or 1300 pages in one evening. This person has read many many books and magazines of easy and interesting content and as an outcome has developed a most rapid rate of reading.

Use of Time Limit. Another fundamental method for increasing speed of reading is to force oneself to read faster. After one has read more rapidly for a time there is a tendency for him to adopt the newer mode of behavior. An individual, for example, may give himself only 20 minutes to read an article which would ordinarily take him 30 minutes to read. Following this procedure, he may find at first that the details of what he has read are a little vague, but in time it will commonly be found that as much or more is retained with the more rapid reading than with the slower. A variation of this procedure is for one to keep a record of how long it takes him to read a given selection. This will generally motivate an individual to read at as rapid a rate as possible. There are many records available of individuals who have doubled their speed of reading in a short time by the simple method of forcing themselves to read faster.

The Metronoscope. The Metronoscope which is shown in Plate 8 facing page 145 is an instrument which has sometimes been used for increasing speed of reading.[28] It is essentially a *tachistoscope.* Stories are printed on rolls and one line at a time is brought into place by the machine, which is driven by a synchronous motor. The speed of presenting the material can be regulated by a dial (the range is from 15 to 50 lines per minute). Although the Metronoscope is an excellent mechanical contrivance, certain unnatural reading situations are introduced when it is used for increasing speed. One such situation is created when a pupil finishes a line, as many times happens, and

[27] Eva Bond, *Reading and Ninth Grade Achievement,* Contributions to Education, No. 756, New York, Bureau of Publications, Teachers College, Columbia University, 1938.

[28] Distributed by the American Optical Company, Southbridge, Massachusetts.

then has to wait until the next line is exposed by the machine. Noises emanating from the machine and the movement of the shutters also produce distractions which are annoying to some pupils. If the Metronoscope is operated with the shutters fastened down, as is possible, the line of print on the regular rolls is found to be broken up into sections with large gaps of space intervening. This produces another artificial reading situation. Despite these objections, the Metronoscope if properly used can play an important role in the remedial teaching of reading. It can be employed to excellent advantage in teaching pupils to rapidly recognize words, phrases, and short sentences which do not require more than a line on the roll. It also serves a valuable purpose in teaching some pupils to read in the left-to-right direction. Furthermore, the novelty and elaborateness of the machine frequently causes disinterested and inattentive pupils to become interested in improving their reading skills and to pay attention to the exercises provided. One teacher in a letter to the writer, stated: "Pupils who have never shown any sign of concentration sit entranced before the Metronoscope." For the sole purpose of increasing rate and fluency of reading, however, there are probably other devices as effective if not more effective than the Metronoscope, and certainly less expensive.

The Push-Card Method. If a simple pushing device is needed to develop speed on the part of pupils who have fallen into the habit of reading more slowly than is necessary, the *push-card method* can be employed. In using this technique, the teacher should first determine the pupil's rate of reading by timing him while he reads a few pages of a book or other selection. For example, it might be found that a given pupil requires, on the average, five seconds to complete a line of print. After ascertaining this fact, the teacher should ask the pupil to continue his reading of the given material. As soon as he has read a line or two, the teacher[29] should begin moving a large card down the page one line at a time, and at a rate of speed that will force the pupil to read at a faster than usual tempo. Since the pupil

[29] Pupil assistants, who have learned the technique of using the push-card method, may substitute for the teacher in performing this operation.

in our example usually reads a line in about five seconds, the teacher might begin by moving the card at the rate of four seconds per line. This will make it necessary for him to speed up his reading in order to keep ahead of the card. With a little practice, the teacher will find that it is possible to count at a rate which will correspond to one second per count. Some teachers have found that by counting to themselves and saying "one-thousand-one," "one-thousand-two," "one-thousand-three," "one-thousand-four," they are able to count out seconds. In this instance, four seconds should have elapsed during the counting. After the subject has developed the ability to read the given material at the rate of a line in four seconds, the card should be moved down the page at the speed of three seconds (three counts) per line. The teacher's counting should always be done silently.

This method not only provides the pushing feature, but also utilizes the school's regular reading materials. Furthermore, the pupil is allowed by this technique to read as fast as he desires. or to drop back a little providing the card has not yet caught up with him. This reading ahead or dropping back would not be possible when using the Metronoscope. The push-card device thus provides a method of increasing speed while retaining many of the elements of the natural reading process. In Plate 6 facing page 81 one child is shown helping another by means of this method.

Reading Board. An apparatus which performs much the same function as the push-card device, but which is electrically operated, is known as the "reading board." Gears of varying sizes which are driven by a Leich motor move a light aluminum cover over a page of print at predetermined rates of speed. The model which is owned by the Educational Clinic of the College of Education at the University of Illinois[30] is so constructed that the speed may be varied all the way from about 100 words per minute up to 600 words per minute.

[30] This reading board was constructed by Mr. Ralph B. Larsen, 7713 Calumet Avenue, Chicago. A teacher or pupil with mechanical ability can easily construct a reading pacer of this type.

By increasing the number of gears on the motor shaft still greater variations could be secured. A sketch of the reading board is shown in Fig. 7.

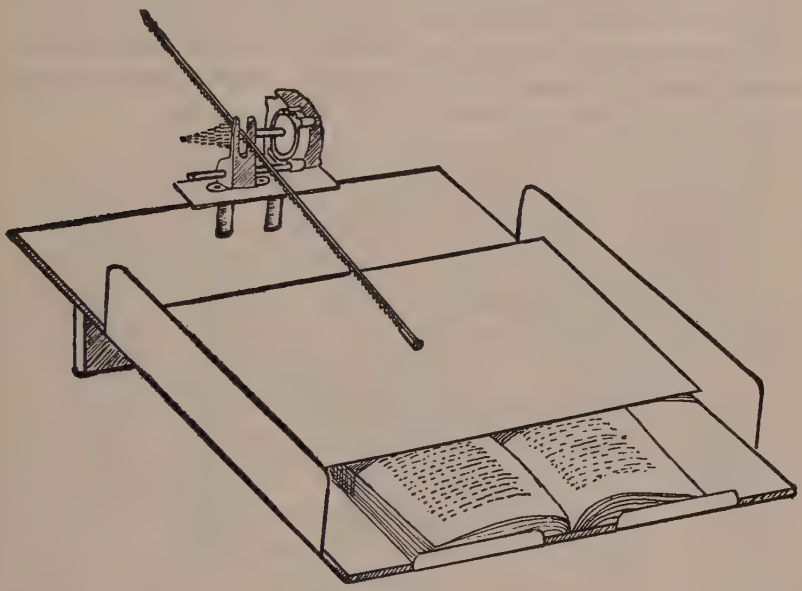

FIG. 7. THE READING BOARD

This apparatus can be used to increase speed of reading. Gears driven by an electric motor push an aluminum cover down a page of print at various rates of speed.

Any book, magazine, or other material may be placed on the reading board. When a pupil is ready to begin, the motor is started by pressing a button and the aluminum plate begins moving down the page. The pupil must keep ahead of this moving plate. If it is found that the pupil finishes the page more quickly than expected, a new gear may be selected which will put still greater pressure on him to read rapidly. The reading board is a decided improvement over the push-card method in that the teacher or other pupil is not needed for its operation.

Buswell has given results that were obtained from using the reading board with four subjects 40 minutes a day for ten days. He says,

> One of the subjects started at the rate of 240 words a minute and at the end was reading with satisfactory comprehension at 320 words a minute. Two of the subjects began at 400 words a minute and at the end of the ten-day period were reading 640 words a minute. The remaining subject began at 400 words a minute and at the end of the ten-day period was reading 600 words a minute.[31]

FIG. 8. THE SRA READING ACCELERATOR
(Courtesy of Science Research Associates, Chicago, Illinois)

It should be noted that all four of these subjects were fairly rapid readers to begin with. With very slow readers it is likely that even greater progress could be made by use of the reading board.

[31] G. T. Buswell, *Remedial Reading at the College and Adult Levels*, Supplementary Educational Monograph, No. 50, Chicago, The University of Chicago, November, 1939, p. 69.

Commercially Available Reading Accelerators. The home-made type of reading board shown in Fig. 7 became such a success in improving reading speed, that commercial concerns began manufacturing reading pacers. One of the best known is the *SRA Reading Accelerator.*[32] It operates in much the same manner as the reading board, and has been judged to be very effective in producing increased rates of reading. This machine is illustrated in Fig. 8. Other reading accelerators available to schools are the *Keystone Reading Pacer,*[33] and the *Rateometer.*[34] The basic idea behind such instruments is essentially sound. If properly used, there is no question that this type of device can be useful in a remedial reading program.

Other Methods of Improving Rate of Reading. The "Harvard Films for the Improvement of Reading"[35] have sometimes been employed to speed up the reading process. Although the extent of their effectiveness has not been definitely determined a number of schools have been using them with apparent success. A very practical and effective method of inducing more rapid reading has recently been described by Smith.[36] This plan calls for the pupils to read silently from their own copies of some book or magazine under the following conditions.

The class begins reading upon a signal from the instructor and is informed orally at the moment when each successive two hundred or two hundred fifty words should have been read, at the chosen rate. The students are instructed to avoid falling behind the signaled rate and are re-

[32] Distributed by the Science Research Associates, 57 W. Grand Avenue, Chicago 10, Illinois.

[33] Available from the Keystone View Company, Meadville, Pennsylvania.

[34] May be purchased from Audio-Visual Research, 531 S. Plymouth Court, Chicago 5, Illinois.

[35] S. V. Wilking, *The Harvard Films for the Improvement of Reading, Teacher's Manual,* Harvard Film Service, Biological Laboratories, Harvard University, Cambridge, Massachusetts, 1941.

Walter F. Dearborn and Irving H. Anderson, "A New Method for Teaching Phrasing and for Increasing the Size of Reading Fixations," *The Psychological Record,* Vol. 1, December, 1937, pp. 459–475.

[36] Kendon R. Smith, "A Simple Device to Induce Rapid Reading," *Journal of Educational Psychology,* Vol. 35, January, 1944, pp. 55–57.

quired to cover up the selection when the final signal is given. One student is then chosen to give a brief oral summary of the material read.[37]

This method can of course be used with one pupil at a time as well as with an entire class.

Improving Reading Comprehension

The primary goal of all reading improvement programs is to develop power of comprehension on the part of pupils. Other matters are of secondary importance. The diagnosis of a given case should indicate what factors are chiefly responsible for poor comprehension. Among the factors that may be related to lack of comprehension are physical factors, emotional factors, low intelligence, poor vocabulary, too slow or too rapid a rate of reading, meager experiential background, lack of interest, lack of reading experience, and lack of specific practice in various types of reading. The remedial work given to a pupil should depend upon which of these causes are found to be operative.

In general, wide reading in a given field will furnish one a background which will make it possible for him to comprehend well in that field. Bond and Bond have suggested that "the teaching of reading necessary to any one field can probably be most effectively and efficiently taught by the teacher of that field, who is aware of the purposes for which the students are reading and the backgrounds necessary for understanding what they read.[38] This would, of course, require that every teacher be trained in the techniques of teaching reading in his particular subject. Each content subject presents its own particular difficulties of vocabulary, ideas, and method of organization. Luella Cole[39] has made a study of the technical vocabulary of each of the following 13 school subjects: arithmetic, algebra, geometry, composition, language, literature, geography, history,

[37] *Ibid.*, pp. 55–56.

[38] Guy L. Bond and Eva Bond, *Developmental Reading in High School*, New York, The Macmillan Company, 1941, p. 170.

[39] Luella Cole, *The Teacher's Handbook of Technical Vocabulary*, Bloomington, Illinois, Public School Publishing Company, 1940.

hygiene, general science, chemistry, physics, and biology. A teacher of any one of these subjects would do well to see whether or not his pupils possess the basic technical vocabulary for successful comprehension. Where inadequacies of technical vocabulary are found, remedial work consisting of wide reading in specific areas or special word study may prove helpful.

General rules for improving comprehension are difficult to give since reading comprehension always takes place in connection with a particular content and a particular purpose. However, adequate vocabulary, interest, and appropriate experience backgrounds are essential if comprehension is to take place. Strang[40] has given a list of practical suggestions for improving comprehension, as follows:

1. Bring to the reading of a particular book or article as good a background of knowledge as possible under the circumstances.
2. Recall the knowledge you already have on the subject.
3. Rapidly venture to anticipate the contribution which you think the author will make.
4. Take a minute or two to decide what you wish to gain from your reading and let this purpose direct you.
5. Glance through the chapter or article, noting central and marginal headings, and other clues to organization.
6. Read the summary if there is one.
7. Read to get the pattern of the author's thought as you go along, anticipating his next point and incorporating, in its proper relationship, the main thought of each paragraph as you read. Take time also to study the meanings that this particular context gives to certain words and the shifts in meaning that take place in the passage.
8. Vary the rate of your reading in accordance with your purpose.
9. Take time to capture and make notes of tangential ideas that occur to you as well as of applications of the material read to pertinent problems.
10. Emerge from your reading of the chapter with a clear and well "thought-through" acquisition of knowledge. It is better to have

[40] Ruth Strang, *Problems in the Improvement of Reading in High School and College,* Revised Edition, Lancaster, Pennsylvania, The Science Press Printing Company, 1940, pp. 372–373.

gained a few fundamental ideas than scores of defective notions. It is better to have gained from the reading a very few functional, dynamic ideas that have become an integral part of your thinking than an ephemeral flock of facts which are quickly dispersed by the passage of time.

11. After you have read the chapter or section, go back over it to note the unfamiliar words, check your interpretation of them, and fix the correct meaning in mind.

No one can expect to be a good reader unless he possesses a differentiated attack. He must possess a repertoire of reading skills. Gates has pointed out that a versatile reader is one who can adjust his reading technique to the problem and materials at hand. He says,

> A competent adult may read a paragraph to get the main idea, to note all the details without differentiation, to secure the answer to a question in mind, to appraise the literary style, to note errors in punctuation, to observe the logical outline, or to perceive the emotional tone of the passage. He may read with passing interest only or to retain as much and as well as possible; he may read rapidly, merely skimming the sentences; or slowly and carefully, appraising each phrase.[41]

Each of these particular types of reading needs to be cultivated if the pupil is to be fully prepared to cope with reading situations which are sure to be encountered in his school work.

Reading for Main Ideas. Frequently the comprehension of the central idea or the general significance of a paragraph or selection is all that is desired. To read every word and to remember a host of isolated details would be wasteful of both time and energy. The pupil who has not mastered this particular art of reading can profit from a variety of exercises. A few of these will now be described.

1. GATES-PEARDON PRACTICE EXERCISES IN READING, TYPE A.[42] The books of this series provide excellent material for use with retarded readers at the various grade levels. Each of these books contains reading selections followed by questions which require pupils to

[41] Arthur I. Gates, *The Improvement of Reading*, Revised Edition, New York, The Macmillan Company, 1935, pp. 40–41.

[42] Published by the Bureau of Publications, Teachers College, Columbia University, New York.

comprehend only the main ideas presented. A specimen exercise follows.[43]

Do you know that the largest fish that lives in the sea is not a fish at all, but really an animal? This animal is the whale. Because its young are fed with mother's milk, the whale belongs to the class of animals called "mammals." A fish breathes through gills, is cold-blooded, and is covered with scales; a whale's body is shaped like that of a fish, but it is covered with skin instead of scales, and underneath the skin is a twelve-inch layer of fat called blubber. This fat keeps the blood warm so that even when the whale is swimming in icy water, its body temperature is about the same as yours. The whale breathes with lungs just as other animals do, so it must come to the surface of the water frequently to get air. If an enemy is pursuing the whale, it may hold its breath and dive deep into the ocean for about half an hour, but if it does not come up soon, it will drown.

1. What does this selection tell?
   (a) The length and weight of a whale.
   (b) How fishes breathe without lungs.
   (c) Why the whale is an animal and not a fish.
2. The whale seems to be more like a fish than an animal because—
   (a) It is warm-blooded; (b) It has lungs; (c) It lives in water; (d) It swims.
3. Choose the best title for this selection.
   (a) The Animal That Resembles a Fish.
   (b) The Fish That Is Really an Animal.
   (c) Animals of the Arctic Ocean.

2. COMPOSING NEWSPAPER HEADLINES. Pupils can be asked to bring to class one or more newspaper clippings of short length. The headings can be cut off and the articles circulated from one pupil to another. Each pupil should write appropriate headlines for the articles he reads. The headlines which the pupils write can be read aloud in class and compared with the original headlines which were detached.[44]

3. STATING THE CENTRAL IDEA FOUND IN A PARAGRAPH. Paragraphs on most any topic can be used for this purpose and the pupils can be

[43] *Gates-Peardon Practice Exercises in Reading*, Book V, Type A, p. 17.
[44] Carol Hovious, *Suggestions for Teachers of Reading Grades VII to XII*, Boston, D. C. Heath and Company, 1939, p. 17.

asked to write in their own words the central idea they have derived from their reading. A variety of such paragraphs can be found in *Reading for Skill,*[45] or in several other remedial workbooks.[46] The teacher can easily select a list of paragraphs of his own from the wealth of books he has at hand. While writing this last sentence, the writer has reached over to the corner of his desk and picked up a copy of Mark Twain's *The Adventures of Tom Sawyer.* Thumbing through it he finds many paragraphs which would be usable. For example:

> As the school quieted down Tom made an honest effort to study, but the turmoil within him was too great. In turn he took his place in the reading class and made a botch of it; then in the geography class and turned lakes into mountains, mountains into rivers, and rivers into continents, till chaos was come again; then in the spelling class, and got "turned down" by a succession of mere baby words, till he brought up at the foot and yielded up the pewter medal which he had worn with ostentation for months.

Write the central idea of this paragraph.

A variation of this procedure would be to have each paragraph followed by a number of multiple-choice statements. The pupil could be instructed to check the one answer which best represents the central idea of the paragraph.

4. FINDING TOPIC SENTENCES. Many pupils have never learned that most paragraphs have one sentence that summarizes the content. They should be informed that such topic or key sentences are frequently found at the beginning of a paragraph, although occasionally they may be found elsewhere in the paragraph or omitted entirely. An excellent exercise consists in having pupils read paragraphs of various types and try to pick out the topic sentences. Another plan is to provide a series of paragraphs from which the topic sentences have been deleted. Dashes or other markings of uniform length can be used to indicate the original positions of these key sentences. The

[45] Angela M. Broening, *et al., Reading for Skill,* New York, Noble & Noble, Publishers, Inc., 1939.

[46] See Chap. 8 for list and description of remedial reading workbooks.

pupils should then be furnished with a list of topic sentences and asked to replace each one in the paragraph to which it belongs.[47]

5. SKIMMING A BOOK, CHAPTER, OR ARTICLE. Oftentimes the pupil needs to evaluate quickly a book, chapter, or article to see if it contains material for which he may be looking. In this case it would obviously be wasteful of time to read every word contained therein. *Skimming* is a technique for getting the general drift of reading materials without reading very many of the words. In skimming a book one might begin by inspecting the title page and table of contents. This would be followed by glancing through the chapters and noting introductory paragraphs, blackface type headings, concluding paragraphs, and summaries. Subheadings and quotations in fine print can be ignored when one's purpose is to get the general idea or content of a book. Chapters or articles may be skimmed in similar manner by skipping over detailed and descriptive material in an effort to see the organization and framework as a whole. Before reading a chapter it is frequently a good plan to skim through it to get the main outline in mind before concentrating upon supporting details. This procedure has sound psychological principles supporting it. Reed,[48] in summarizing experimental work on the relation of perception of pattern to rate of learning, has made the following statement: "In a memorization of the meaningful materials the perception of pattern reduces the amount of time needed all the way from one-half to nine-tenths. Sometimes the proportion of reduction in learning time is much greater."

One frequently skims material in an effort to find the answers to one or more questions which he may have in mind. As an exercise for increasing this ability, teachers may provide the pupils with an article on some topic, and then ask them to see how quickly they can find the answers to one or two specific questions which are answered in the article.

[47] Carol Hovious, *Suggestions for Teachers of Reading Grades VII to XII,* Boston, D. C. Heath and Company, 1939, p. 16.

[48] Homer B. Reed, *Psychology and Teaching of Secondary School Subjects,* New York, Prentice-Hall, Inc., 1939, p. 4.

Knight and Traxler have provided a number of exercises in their book on *Read and Comprehend* which are especially designed for developing ability in skimming. One such exercise is the following:[49]

Go to the library and get a history or science book and compare it with your textbook in the same subject. Judge the new one in this way:

1. Read the preface or at least the part of the preface that tells the author's purpose in writing the book.
2. Examine the table of contents to discover the main divisions of thought.
3. Read the first part of each chapter to discover the problem discussed.
4. Look for a summary at the close of each chapter.
5. Read more fully in the chapters that are not clear after this rapid reading.
6. Review the main ideas by glancing through the chapter headings again.
7. How do you think the book compares with your textbook in the same subject? Better? Equally good? Not as good? Why?

Name of book .....

Reading for Details. There are times when one needs to read carefully in order to obtain specific details or to understand instructions that are given. Just getting the general idea is insufficient. A boy, for example, might desire to learn to operate a motion-picture camera or projector. This would require that he read with utmost patience the many detailed instructions that are included in the manual of directions. Some individuals perform this type of reading only with the greatest effort and then fail to note items of vital importance. Such a reading deficiency may cause an individual no little trouble. A new car owner who is unable to assimilate the many details which he reads in his instruction book may find himself the loser when expensive repairs have to be made.

Types C and D of the *Gates Basic Reading Test*[50] are designed to test whether or not pupils have acquired the ability to understand printed directions and to read for details.

[49] Pearle E. Knight and Arthur E. Traxler, *Read and Comprehend*, Boston, Little, Brown and Company, 1937, p. 37.

[50] Published by the Bureau of Publications, Teachers College, Columbia University, New York.

If one is weak in this particular reading skill, improvement may be brought about by practicing on a variety of materials. The *Gates-Peardon Practice Exercises in Reading* (Types C and D),[51] give the pupil experience in this type of reading. In these exercise books, paragraphs of expository material are followed by questions which test the pupil's ability to recall the details which he has read. Exercises designed to help pupils improve their ability to comprehend and remember written instructions and details are also found in such books as the following:

Reba G. Mack, William A. McCall, and John C. Almack, *Roads to Reading,* New York, Harcourt, Brace and Company.

Carol Hovious, *Flying the Printways,* Boston, D. C. Heath and Company.

Stella S. Center and Gladys L. Persons, *Experiences in Reading and Thinking,* New York, The Macmillan Company.

The resourceful teacher can find an abundance of suitable materials for this purpose in newspapers, magazines, books of games, cooking recipes, and encyclopedias. The teacher will generally have to construct the questions when the readings are taken from such sources.

There is only one way to learn to read for details and that is to read a great deal of material which requires this skill. One learns to do what he does, or as Gray[52] has put it—"learning to behave in a certain way is brought about only by behaving in that particular way."

Summary

The specific nature of the remedial treatment to be given a pupil should depend upon the particular diagnosis which is made of his case. No two pupils are exactly alike either with respect to the difficulties they may have or with respect to the interests and goals

[51] Published by the Bureau of Publications, Teachers College, Columbia University, New York.

[52] J. S. Gray, "A Biological View of Behavior Modification," *Journal of Educational Psychology,* Vol. 23, November, 1932, pp. 611–620.

they possess. Despite this fact, there are several rules of procedure which have wide applicability. Five of these are: (1) begin where the pupil is, (2) inform him frequently by means of charts and graphs of the progress he is making, (3) see that the exercises engaged in satisfy some basic goal of the pupil, (4) frequently commend the pupil for work well done, and (5) supply a variety of exercises and activities so that the work will not become monotonous.

A pupil's reading vocabulary can be extended through extensive reading; the use of an appropriate dictionary; systematic word study; the study of prefixes, suffixes, and the roots from which English words are derived. The most useful of these procedures is the *wide reading method.* Words learned in their natural context by this method are likely to be better understood and better retained than when learned in isolation. The other procedures should serve a supplementary purpose.

The "nonreader," however, will have to develop a basic sight vocabulary before any reading on his part will be possible. For this purpose, he may study the 220 words of the Dolch list. This small number of words makes up from 50 to 75 per cent of the context of most reading matter and should be immediately recognized by all pupils above the third-grade level.

Speed of reading can be improved through extensive reading, use of a time limit, use of the *push-card method,* and through use of several mechanical instruments which have been devised for improving rate of reading.

Power of comprehension in reading can be increased through vocabulary enrichment, the broadening of experience backgrounds, and through specific practice in reading materials of a variety of types. A pupil may comprehend well what he reads in one field, but gain little from his reading in other fields for which he has not the requisite technical vocabulary or experience backgrounds. For example, he may be very proficient in reading history, but totally inept in reading chemistry. Or he may be proficient in his ability to understand the general significance of a passage, but be deficient in his

ability to read for details. Reading ability is not a unitary trait, but rather a complex of skills each of which must be developed by appropriate practice.

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Chapter 5

Remedial Reading Programs in Elementary Schools

The sooner difficulties and blocks to reading can be discovered in children the better it is for all concerned. One of the chief causes of reading troubles in upper grades may be traced to pupils getting a poor start in the early grades. Many a child starts to school eager to learn how to read but meets with failure in his initial attempts. This may be due to lack of readiness for the task of reading. If such children are pushed on to advanced grades where no attempt is made to meet them at their own levels, further bewilderment ensues and the children may finish the elementary school grades without having developed even rudimentary reading skills. Elementary schools throughout the country are giving increased attention to remedial work at all the grade levels. It is being recognized as an essential part of their reading programs.

Situation in Typical Elementary School Grades

The teacher at any grade level who tests his pupils will find extreme variations in how well they read. A grade teacher, for example, may have children who are just beginning to recognize the most common words. In the same classroom there will be others who read with proficiency at the seventh- or eighth-grade levels. In Table VII is presented the results which were obtained when the *Chicago Reading Test* was administered to 2,212 third-grade pupils in the Omaha,

Nebraska schools.[1] In this school system a third-grade teacher would obviously have to be prepared to minister to children whose reading skills fall at every grade level from one to seven. This represents a problem requiring utmost skill on the part of the teacher concerned and resources in the form of many types of instructional materials and devices.

TABLE VII

Reading Proficiency of 2,212 Third-Grade Pupils in Omaha Public Schools

READING GRADE ATTAINED	PUPILS	
	NUMBER	PER CENT
0.5–1.5	39	1.7
1.6–2.5	630	28.5
2.6–3.5	742	33.6
3.6–4.5	497	22.5
4.6–5.5	193	8.7
5.6–6.5	60	2.7
6.6–7.5	51	2.3
Total	2,212	100.0

Organization of Remedial Reading Work

Fundamentally elementary schools use one or both of the following methods in dealing with their retarded readers: (1) handle them in their regular classes making provision for the individual differences found, (2) teach them in classes especially designed for retarded readers. In addition to these two basic procedures, some schools have a remedial reading expert or school psychologist who works with individual cases. Some schools that are fortunate enough to be near a university or city reading clinic avail themselves of these facilities. In general, however, the great bulk of remedial teaching is carried forward by classoom teachers.

Remedial Teaching in the Regular Classroom

The teacher who handles an unselected group of children at any grade level must of necessity make wide provision for the variations

[1] William H. Waite, "The Improvement of Reading in the Omaha Public School," *Elementary School Journal*, Vol. 48, February, 1948, pp. 305–311.

in ability found. Such a teacher in reality must teach several grades. This teacher's work is somewhat similar to that of a school teacher in a one-room rural school who has as many as six or eight different grades in one room. Most teachers in such a situation organize the children into two, three, or four groups on the basis of their ability to read and provide suitable activities for each of these groups.

An example of this type of organization in a fifth-grade class is described by the teacher involved.[2]

The September tests were used to break up the thirty-four children into two major divisions. To overcome the stigma attached to "B" group membership as opposed to "A" group, we called our better than average group "Aces." Our slower group we called "Beavers." The Aces were composed of the top twenty pupils. The six top children were known as "Special Aces." These children were as much as two grades advanced.

The Special Aces were sometimes given a lesson from the sixth-grade reader. Sometimes they were permitted to do supplementary reading. . . . The remainder of the Aces had lessons in reading from material that suited their level of accomplishment.

The fourteen Beavers, our slower readers, spent their time studying the material in a Grade Four level reading book. The fact that they were able to achieve success with the easier reading book stimulated their interest. . . .

The Aces and the Beavers each had a twenty-minute lesson during the regular reading period. We always taught the Beavers for the first twenty-minutes because we felt nothing should interfere with the instruction of our slower readers. To make sure we did not run overtime, a pupil in the Aces was appointed "Reading Lesson Monitor." . . .

Our school is fortunate in having a branch of the Children's Public Library right in our school. A librarian makes a weekly visit to the school and each class makes a weekly visit to borrow books. . . .

Our class library of forty books played its part in our reading program. Each child was given a book to take home and twice a month these were brought to school and exchanged. By the end of the year every child had read twenty books from this source alone.

[2] John H. Pepper, "How We Improve Reading in Our Toronto Schools," *The Grade Teacher,* Vol. 68, December, 1950, p. 16. Used by permission.

In Ventura County, California[3] each elementary school teacher divides his class into three groups. How this is done is explained as follows:

> Those children who entered since the standardized tests were administered are given informal oral reading tests by the supervisor or the teacher. To give this test the examiner takes all the books in a certain series and stacks them in order with the easiest pre-primer on top. The child reads a page from the book on top. If he reads that page with no or only slight errors he is given the next book in the series and so on until he misses two to four words on a page. The book in which he misses two to four words on a page indicates his grade placement in reading. After the children's reading levels have been determined with as much accuracy as possible through the use of permanent record cards, standard test results, and informal test results, the classes are organized into three groups if possible. One hour is about all the time a teacher can have for reading and in one hour she will have trouble giving a fair time allotment to any more than three groups. Too much cannot be said about keeping these groups flexible. Certain children will progress faster than others, so that the teacher will be required to modify her grouping now and then in order to keep pupils with similar abilities in the same group.

There are some teachers who attempt to handle remedial reading work in the regular classroom by working individually with the one, two, or three most retarded children. This is essentially a one-group method of teaching supplemented by extra individual coaching for a few pupils. This procedure may work very well in those classes where there is great homogeneity of ability with the exception of an isolated case or two. In general, however, the variations in ability in an unselected class are so great that teachers are forced to adopt some type of multiple within-class grouping.

Special Classes for Retarded Readers

Some schools feel that seriously retarded readers need more help than can be given in regular classes. They believe a specially planned program tailored to fit the needs of children with severe reading

[3] Pauline Jeidy, "Improving the Program in Reading," *Elementary English*, Vol. 26, January, 1949, pp. 27–31.

disabilities has a much greater chance of success than does one which aims to cater to a more diversified set of objectives. It is argued that special classes may secure teachers who have been trained for and are particularly interested in working with children with reading handicaps. Such classes may also concentrate upon acquiring special materials and equipment designed for retarded readers. Schools which have special sections for retarded readers also have reasoned that the child is less humiliated and stigmatized in a group which has characteristics similar to those he possesses than in the regular class where he is constantly being rated as inferior.

Schools that have several teachers for a given grade can easily distribute the children into classes according to their reading needs. Let us say that Miss Smith, Miss Jones, and Miss Brown all teach the second grade at a certain school. At the beginning of the year the very poorest readers may be assigned to Miss Smith's room, the average readers to Miss Jones, and the accelerated readers to Miss Brown.

The assignment of the teachers to the different groups should, of course, be guided by the teachers' interests and special competencies. The rooms need not bear any distinctive designations other than the names of the teachers. The work that goes on in each of these three second-grade rooms, however, should probably differ radically from that which goes on in the others. Even when children are grouped in separate rooms along with other children who have somewhat similar problems, the teachers will still have to make provision for individual differences. Absolute homogeneity can never be attained and would probably be undesirable even if it could be.

The plan which has been described really consists of having several regular classes at the same designated school grade, each of which carries on a program of instruction geared at the reading grade levels at which pupils can succeed. Second-grade children, for example, would all consider themselves to be in regular second-grade classes, but what each child would be doing would depend upon which room he was in.

Some schools utilize a somewhat different procedure in dealing with the more severely retarded readers. They draw from several regular classes at different grade levels those children who need extended help and place them under the guidance of a special remedial reading teacher. One such example will be cited.

In the Madisonville Public School,[4] with an enrollment of twelve hundred, a careful study was made of the abilities of all the pupils in the intermediate grades. The thirty pupils most in need of help were selected for the remedial reading class. The exact procedure followed is recounted by a teacher in this school. She says,

> Before school closes in June, all reading teachers of Grades Two through Seven are asked by the Principal, Mr. Harold E. Nichols, to fill out a questionnaire for each pupil who, in the teacher's opinion, would profit from attending the remedial class.
>
> From the intelligence test rating of a child his reading expectancy is estimated. From it is subtracted the score he makes on a standardized reading test. For example, Hubert's IQ is 98. His chronological age is thirteen years and eleven months. His reading expectancy is Grade 8.1. He scored 4.0 on the reading test. Therefore he is retarded four years and one month. . . .
>
> Any child who is reading at a level of one year or more below his reading expectancy is a candidate for the class. The thirty most retarded are selected for the class. The others are retained on the waiting list. As soon as a pupil has made sufficient progress to be excused from the class, he is replaced by the child who is next on the list.

In this remedial reading class at Madisonville each child is given much individual attention. His interests are explored and reading activities are tied up with them. He is made to feel that he is valued by his teacher and classmates and that he is adequate in many areas. The teacher of the class described a large number of children, who though markedly unsuccessful in reading in their former regular classes, were now making excellent progress in learning to read in the remedial class.

In Brooklyn, New York a still different procedure is used in

[4] Rose Laffey, "A Program in Remedial Reading," *Elementary English*, Vol. 27, April, 1950, pp. 230–239.

organizing the remedial reading classes.[5] It might be called the Small-Group Method. The coordinator of remedial reading in Public School 233, Brooklyn, has described the plan as follows:

It was obvious that those teachers who spent the full five-hour day with their classes could not be released *en masse* to do remedial reading work. . . . A half dozen teachers in the Third and Fourth years, were assigned to do remedial reading from two to four times a week, each period lasting a full hour.

The children selected for this special help are retarded two or more years (in the Third Year, the retardation is necessarily less). The reading level for those in each particular group is about the same. . . .

Remedial groups each contain four (this is ideal) to six children. The larger the group, the more difficult it is to maintain the intimate, personalized relationship so necessary for success. . . .

One of the primary problems was to find suitable materials to work with. It was evident that the same basal reader with which the child had already met defeat in the classroom should not be used. The mere sight of it would make him "tense up," become antagonistic to the situation, and wallow in a sea of inferiority.

After much experimentation we finally decided on the W.P.A. Remedial Reading Booklets. They are well-graded and are of interest to the children.

In addition to the plans for organizing remedial reading programs in the elementary school which has just been described there are some others which have been used by a few schools. One of these is known as the Inter-class Grouping Method. In inter-class grouping, all teachers schedule instruction in basal reading for the same hour. Each pupil goes to the classroom for reading instruction where other pupils with similar reading abilities are found. Wilson[6] has described this plan as follows:

In some schools, only pupils of the intermediate grade change classrooms for reading instruction. In other schools, all the pupils above grade one shift to their homogeneous group for reading instruction. In still other schools, only the pupils in two grades, as grades five and six or grades four

[5] Betty S. Slesinger, "Attacking the Problem of the Retarded Reader," *Elementary English*, Vol. 31, March, 1954, pp. 144–145.

[6] Mary C. Wilson, "Individualizing Reading Instruction," *Peabody Journal of Education*, Vol. 26, January, 1949, pp. 195–201.

and five are grouped homogeneously on the basis of reading ability. In certain large schools where there are several sections of each grade, the pupils of a single grade classification are grouped homogeneously according to reading ability. At the period scheduled for basal reading all third-grade pupils move to the classroom where their reading ability places them most homogeneously. Likewise, the fourth-grade pupils move to the classroom of their nearest level in reading and so on throughout the school. After the basal reading period, all pupils return to their homerooms for the remainder of the school program.

Some Supplementary Procedures

It was mentioned earlier that some schools or school systems employ school psychologists who work individually with a limited number of children possessing the most extreme forms of reading disability. This is a valuable adjunct to the remedial reading program of any school. Most schools, however, have to operate without much assistance from this source. The reading clinics sponsored by universities or large school systems are also too few or too distant to take care of many of the reading cases found in the typical school. However, this source of help should not be overlooked whenever it is available.

It has been suggested[7] that the elementary school librarian can be of great assistance to teachers in handling their disability cases in reading. Librarians who are trained or who are sensitized to the problems in the field of remedial reading can obviously make a most significant contribution to the program.

An interesting reading club which involves the cooperation of teachers, librarians, and student teachers has been described in an article by Smith.[8] She says:

> Every Tuesday, as soon as the school day is over, twenty youngsters from intermediate grades throughout the city flock to the public library. The reason is just this simple. They crave to learn to read.
>
> Membership in this club is limited to boys and girls who are recommended by their classroom teachers as children who have serious reading

[7] Dorothy B. Swingle, "Reaching the Slow Reader in the Elementary School Library," *Pittsburgh Schools,* Vol. 23, May, 1949, pp. 144–146.

[8] Linda C. Smith, "Retarded Readers Flock to This Club," *New York State Education,* Vol. 38, December, 1950, pp. 186–187.

difficulties. They may remain in the group until they achieve success at the grade level where they are being instructed at school.

There is always a waiting list for membership. Every little while some boy brings his pal and explains that he can't read very well either. Such boys are sent back to ask their teachers to recommend them to the librarian. If their names are sent in they will be notified when there is a vacancy. Some boys have been turned away because they are beyond the twelve-year age limit. One is waiting until he is nine so that he may join. . . .

During the library period, college seniors are in readiness to help in case any children have difficulty. A child may want a different book, or he may ask about an unfamiliar word. Most children, however, select very easy books, encounter few troublesome words, and work independently throughout the period. . . .

During the second half hour, children are assigned to individual student instructors. . . .

Reports are coming from parents and teachers, messages of appreciation. For the first time Jim is showing interest in the newspaper, or Joyce has passed her reading test with a gain of six months on her score. Of course the classroom teacher is working daily with these children, while at the library the group meets only once a week. Perhaps the strongest feature of this enterprise is the cooperation involved. . . .

Remedial Reading in the Rural School

The teacher of a one-room rural school has a problem so far as remedial reading is concerned. He not only has to provide reading instruction at all the different grade levels, but has to make modifications for pupils within a given school grade. His problem, though similar to that of the teacher in a city system who handles remedial work in regular classes, is complicated by the fact that he must deal with children of such widely separated age levels. Resourceful rural teachers, however, seem to find time somehow to help their pupils who have special disabilities in reading. One rural teacher[9] tells how she helped a third-grade boy overcome his reading weaknesses. She says:

Harold had spent two years in the first grade and two years in the second. It was at the beginning of the next year that he came to our school. I

[9] Dora MacKay, "Remedial Reading in Rural Schools," *The Instructor*, Vol. 59, October, 1950, pp. 72–73.

realized that unless Harold and I worked hard together, he would not be able to pass at the end of the year. The job that confronted us was one of putting three years' work into one. He needed training in phonics, word meaning, word recognition, and word analysis. He also needed to build up a sight vocabulary. He needed experience in reading "real" stories to give him the encouragement to work harder. So Harold and I made out a special program for him, although he was not the only child in the third grade. He participated in the phonetic training given to the first grade. He was the group leader twice a week when he helped the first grade with the flash cards. Occasionally, he supervised word construction in the first grade when the first-graders used the alphabet cards. Harold read with the second-grade reading class. Although at the beginning of the year his vocabulary was not equal to that of a second-grader, it was necessary to put him in this class, because the subject matter of the first-grade reader was too simple for him. All the time, Harold continued with his third-grade reading class. At first he did not read, but he learned a great deal by listening. It was necessary to keep him with his own class so that he would not miss out on the subject matter of his grade.

The primary grades were excused earlier in the afternoon than the intermediate and upper grades. As Harold stayed until his older brother went home, I could help him for short periods with his special problems. . . .

Before the Christmas vacation, Harold volunteered to read aloud in his third-grade reader. With some help, he managed to read a story for his class. This gave him encouragement. *He could read.*

At the end of his third year, he passed a "Progressive Achievement Test" with a high fourth-grade rating. Although I am not now at that school, I have talked with the new teacher and found that Harold is doing satisfactory work.

Evaluation of the Different Plans of Organization

The plan of organization of the work in remedial reading does not necessarily make the program a success or a failure. The success of a program depends upon how it is carried out. Children may be stigmatized in regular classes or in special classes or in neither. Some teachers are so skillful and sympathetic to the needs of the children that excellent results would be obtained under any type of system. In general, smaller schools have to depend upon regular teachers to do the remedial reading work in their regular classes. Larger

schools may supplement this basic approach by providing special classes or individual tutoring for the most seriously retarded children. Outstanding remedial programs are those which utilize sound principles of learning and motivation in the activities which are employed. In the following section will be presented a general discussion of fundamental principles of motivation which should be used in every system of organization.

Motivating Work in Remedial Reading in the Elementary School

How does a teacher go about getting a pupil who hates reading to like to read? E. L. Thorndike has suggested that the way to do this is to follow the fundamental rule of "practice with satisfaction." If a pupil receives pleasure from the activity of reading or if some basic need is met by reading, the pupil will gradually develop a liking for it. Whenever an annoying activity is imbedded in a very strong satisfying context, says Thorndike, there is a tendency for the annoying activity to lose its distastefulness and to take on the satisfying qualities of the context of which it is a part. If a pupil is successful in his efforts to learn to read, if he is made to feel important and to have status, and if a feeling of achievement accompanies remedial work, it is inevitable that reading will come to be enjoyed rather than disliked.

The psychologist Kurt Lewin would have stated the solution to the problem in slightly different terms. He would have said that, if you want to get a pupil to read, the thing to do is to place reading between the pupil and his goal. People always go to the goals they have set for themselves. Elementary school pupils have interests and goals. Find out what these are and then show the pupil that, to reach his goals, he will first have to master reading. A pupil may have a very strong interest in aviation, for example. He is curious about aviation facts. If the teacher could place in his hands very easy but interesting material on aviation,[10] the chances are he would do

[10] For example, the *Aviation Readers: Grades I–VI,* New York, The Macmillan Company.

his best to read it. In reading this, he would further his basic interest in aviation, but at the same time he would have gained practice in reading. Such a procedure would also tend to diminish his dislike for reading, for research has shown that the individual who attempts an activity because he believes it will help him reach one of his goals not only learns the activity but, in addition, develops a liking for the activity.

An excellent example of how a second-grade teacher motivated a seriously retarded pupil to read is given in this teacher's own words.[11]

CASE OF JIMMY

Halting and unsure of himself, Jimmy droned along on his reading lesson.

"Mittens," he said.

"Is," I said.

"Is," he repeated.

"In," I prompted, when he hesitated longer than I wanted to wait.

"In," he repeated halfheartedly.

He managed *the tree* himself.

"Can't you even remember *is* and *in*?" I burst out in exasperation. "How do you ever expect to read the funny papers if you can't remember these simple words?"

Jimmy's eyes popped open in surprise and with the first flicker of interest I had seen in the child. Suddenly he was awake in every nerve.

"Are these words in the funnies?" he asked, pointing to the page of his preprimer.

"Of course they are. I'll bring you a funny paper tomorrow and prove it," I said with enthusiasm; for now was the time to do as our professors had told us, "strike while the iron is hot," and "start with the child where he is."

That evening I looked hopefully at the funny papers. "The comic strips had better not let me down," I thought. "If *in* and *is* aren't in the paper, Jimmy will lose all his faith in me."

The words were there all right, and I took the paper to school. Jimmy chose to read the Tarzan strip. I showed him that the words were printed in capital letters and suggested that he circle the words he thought he knew.

[11] Auril Wood, "Jimmy Reads the Comics," *The Elementary School Journal*, Vol. 51, October, 1950, pp. 66:67.

For the next few weeks Jimmy's remedial reading took the form of funny-paper strips. He read his preprimer words, and I supplied the hard ones. Quickly he learned to recognize the proper names and even some of the adventure words. We swung Tarzan into trees, saw him jump rivers and fight lions, until Jimmy was ready to settle for his preprimers again.

This time Jimmy had a reason for getting Mittens into trees and out of trees, for the dog to run up and down the street. He wanted to learn his basic vocabulary—and learn it he did with great enthusiasm.

One day a few months later, I put some new library books on the table. Jimmy was the first to spot them. He picked up a book about cowboys and brought it to me.

"Gee whiz," he said, "I'd sure like to be able to read this book."

"Well, gee whiz," I answered, "a boy who can read the funnies could certainly read this."

He gave me the cheerful grin of a boy who had arrived at a goal, and we settled down to read all we could about cowboys.

Summary

Children who have difficulty in learning to read should be spotted early in the elementary school program and should be given necessary remedial help. To delay this aid until the junior or senior high school stage is reached is to invite serious disaster not only for the child's reading progress but for his personality development as well.

Elementary schools have used a variety of plans for handling remedial reading instruction. These include: (1) dealing with the problem in regular classes, (2) organizing special classes for retarded readers, and (3) utilizing the Inter-class Grouping Method. These methods are supplemented whenever possible by use of the school psychologist, the university or school reading clinic, and the librarian who is trained in remedial methods. In this chapter descriptions have been given of these various organizational procedures. Also an account was included of how a rural-school teacher dealt with the problem of remedial reading.

The success of a remedial reading program does not depend so much on the exact nature of its plan as upon the method and spirit with which the plan is carried out. Excellent results have been achieved by all the systems described in this chapter when appro-

priate attention has been given to sound psychological principles of teaching. Each school should decide upon its own mode of approach after having studied its pupils, teaching staff, and other relevant data.

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Chapter 6

Remedial Reading Programs in Junior High Schools

Introduction

Formal reading instruction is discontinued at the end of the sixth grade in many of the schools which operate on a 6-3-3 basis. This is done on the assumption that pupils have learned to read by the time they have finished the elementary school. Evidence is plentiful that this premise is faulty. Few, if any, pupils at this stage of their development have mastered all the subtle and varied skills of reading, to say nothing of the pupils who are on the lower end of the distribution of reading ability. The introduction of new types of subject matter under a departmentalized plan creates a demand for reading skills which many of the pupils do not possess. Each subject of the junior-high-school curriculums presents its own particular vocabulary and specific type of study activity. For the most part departmental teachers are poorly trained to give reading instruction, and some of them are not in sympathy with giving such instruction in the junior high school. The seriousness of the reading problem, however, has become so great that a number of junior high schools have begun to organize specific reading improvement programs. In many places the burden of this work is carried by the English departments, but in an increasing number of instances the cooperation of all teachers has been enlisted to the end that reading instruction is provided in the other content subjects.

In this chapter descriptions are given of several remedial reading programs which have been developed by junior high schools. Also included is a summary of trends in remedial reading as discovered by a nation-wide survey of remedial practices.

A Program at the Seventh-Grade Level

In the Junior High School at Niles, Michigan, five sections of seventh-grade English are provided. Pupils are sectioned according to their reading ability and their scores on intelligence tests. The divisions containing the good readers are large, about forty pupils per section, while the divisions containing poor readers are small, enrolling about twelve to twenty pupils each. The five sections of English are, in reality, courses in reading. The teacher of these courses is also the librarian of the junior high school. The school library adjoins the room in which the reading classes are held and is separated from it only by plate glass windows and a connecting door. The classroom itself contains eight large library tables with six movable chairs to each table. A bulletin board runs the entire length of one side of the room. On the opposite side are magazine racks and book shelves. Fifteen different magazines are filed in the racks and five Thorndike-Century Junior Dictionaries are found on each table. The attractiveness of the room is enhanced by the potted plants at each window.

Objectives of the Remedial Reading Program. The teacher[1] states that the major aims of the reading program at Niles Junior High School are as follows: (1) gaining rich and varied experience, (2) developing a permanent interest in reading, (3) acquiring appropriate and effective skills.

Data Collected for Each Pupil. Each pupil in the various reading sections is carefully studied and a diagnosis is made of his particular weaknesses. Among the tests that are administered are the following:

Iowa Silent Reading Test, Elementary Form
Gates Reading Survey for Grades 3 to 10

[1] The description of the remedial reading program in the seventh grade of the Niles Junior High School was provided by the teacher, Miss Marie E. Getz.

Otis Self-Administering Test of Mental Ability, Intermediate Examination
Chicago Non-Verbal Examination

The school records of each child are thoroughly combed for additional information, such as achievement scores, attendance records, behavior traits, and physical condition. The hearing of each child is examined by the school nurse by means of an audiometer. Vision is tested by means of the Keystone Visual Survey Instrument and the Snellen Chart. The teacher annually makes a visit to the home of each child and observes conditions which may have a bearing upon his difficulty. Furthermore, an interest inventory and questionnaire is filled out by each pupil. On this he tells which books and magazines he enjoys reading, what books he has read during the past year, where he gets his books, whether he likes to read himself or would prefer to have someone else read to him. On this inventory he also expresses his likes and dislikes in general. The facts collected for each pupil assist the teacher in providing appropriate remedial activities.

Weekly Schedule. The weekly program of reading is divided as follows: On Mondays, attention is given to work-type reading; on Tuesdays, Wednesdays, and Thursdays, books designated as "literature" are read and discussed in class. For the poor reading groups these books consist of interesting materials which are well within the abilities and interests of the pupils. Friday is "free reading" day.

Work-Type Reading on Monday. For the seventh-grade reading classes forty copies of each of the following materials are available for use in developing better study skills:

Practice Exercises in Reading, Gates-Peardon, Book V, Types A, B, C, D.
Standard Test Lessons in Reading, McCall-Crabbs, Book V.
Experiments in Reading, McCall-Cook-Norvell.
Forty Famous Stories, Mertz (Hall and McCreary Company).
Modern Living, Johnson (American Education Press).

Seldom is a pupil expected to cover all this material during the year. Instead, the particular exercise book that is used with any given

pupil depends upon his interests and his ability. Before any of the work-type exercises are begun by the pupil, the teacher gives a short introductory talk to arouse interest in the assignment and to help the pupil see the purpose toward which the work is directed. Some of the work is done individually and some of the work in groups, when it is found that several individuals possess similar weaknesses.

One phase of the Monday program consists of vocabulary study. This work begins with instructions on the use of the forty *Thorndike-Century Junior Dictionaries* which are in the room. Some attention is given to prefixes, suffixes, and roots of English words. Pupils keep lists of new and unfamiliar words. Difficult words from the reading selections are oftentimes put on the board by the teacher and discussed. Occasionally oral reading is engaged in. This takes place, however, after the pupils have read the selection silently, and is the natural outgrowth of some question that the teacher has asked the pupil about his reading. The pupil may be asked to reread a certain section which contains the answer to the question. Errors in pronunciation are very frequently discovered in this way. One boy, for example, called the word "thickset" "thickest." When this error was discovered, the teacher was able to show him the similarities and differences in the two words. The teacher, however, does not favor "oral reading around the class." She believes this to be a waste of time since there is no motive present. It is her opinion that oral reading should grow out of a discussion developed in class and should be preceded by silent reading. Some attention is given on Mondays to drills for developing rate of reading. However, speed is not overemphasized. Speed of comprehension is the goal rather than just speed. Throughout all of the work, records and score cards are kept, and graphs are sketched to show the improvement that is made in the various skills.

The Reading of Literature on Tuesdays, Wednesdays, and Thursdays. The books that are read for group discussion on Tuesdays, Wednesdays, and Thursdays are made available through the opera-

tion of a rental system. By this method forty copies of each of the following books are provided in the reading room:

Moni, the Goat Boy, by Spyri.
Pinocchio, by Collodi (Thorndike Library, Edition D).
Black Beauty, by Sewell (D. Appleton-Century Company).
Being Good to Bears, by Mills.
Dog of Flanders, by De la Ramee.
Tom Sawyer, by Mark Twain.
Swiss Family Robinson, by Wyss.
Chico, by Blanchard.
When Washington Danced (Scott, Foresman and Company).
Best Dog Stories (Rand, McNally and Company).
Junior Literature, Book I, by Leonard and Moffett.
Literature and Living, Book I, by Lyman and Hill.
Growth in Literature, Book I, by Pooley, Walcott, and Gray.
Hidden Treasures in Literature, by McCall, Cook, and Norvell.

All the pupils in a given reading section read certain of the easier basic selections, so that there will be something in common for the class discussion. However, opportunities are provided for diversities of reading both as to quality and quantity. As the pupils read silently, the teacher has an opportunity to observe some of their reading habits. Particular attention is given to lip reading, pointing, vocalization, head movement, poor attention, and general nervousness.

Free Reading Period on Friday. The entire period on Friday is given over to free reading. Since the library adjoins the classroom, maximum use is made of it. After the pupils check out books of their choice, they come to the classroom to read. At all times they are free to exchange books with each other. The atmosphere of the classroom during the reading period is characterized by a feeling of relaxation—of informal social enjoyment. Since the teacher of the reading classes is also the librarian, she is thoroughly acquainted with the books that are in the library. She therefore knows which books to recommend to pupils and which books would not be suitable for their purpose. In addition to the wealth of books which are found in the

library and in the classroom, the following fifteen magazines are found in the reading rack:

Popular Mechanics
Model Airplane News
American Girl
American Boy
National Geographic
Nature
Young America
St. Nicholas
Popular Science
Boy's Life
Child Life
Outdoor Life
Open Road for Boys
Boy Scout Magazine
My Weekly Reader

It has been found by the teacher of the remedial reading classes that girls are particularly interested in stories of home life, love, kind deeds, social affairs, and mystery. In general, the boys enjoy stories of adventure, kidnaping, rescues, mischievous pranks, animals, contests, and sports. Before ordering new books for the library, the teacher collects notes from the children as to the type of stories they desire. When the books arrive, many of the poorest readers as well as the better readers are overjoyed, as they feel that the books have been ordered by them and for them.

As an aid in selecting suitable books for the library the teacher consults the following book lists:

Standard Catalog for High School Libraries.
Lists from the National Council of Teachers of English.
Winnetka Graded Book Lists.
Follett Graded Library Reading Lists.
The Book List (section on books for young people).
Wilson Bulletin.
The Horn Book.

The teacher has stated that *The Horn Book* is her favorite as it lists all the new approved literature on the market for boys and girls. Each month she also receives ideas concerning new books from the book chats in the *Child Life Magazine* and the *American Girl.*

The pupils keep their own records of the books and periodicals read. For this purpose the school printing shop produced a standard

form which gives the pupil the opportunity to record the name of the book, type of book, the author, comment, date completed, and number of pages read. This record indicates to the pupil the growth and progress he is making in his reading tastes. There is no requirement for the pupil to read any specified number of books. After the books have been read in the free reading period, book chats are frequently held. At this time there is an interchange of opinion as to the excellence of the various books read. Pupils recommend to one another the books that they have found to be particularly interesting.

Results of the Program. The teacher of these classes in remedial reading has made the following statement. She says,

> During the last three years the University of Michigan has conducted a survey in which the Traxler Reading Test was given to all ninth-grade pupils in the state. Each school is compared with all other schools of its size. For the last two years Niles High school has headed the list in its division. However, we are not satisfied. We are trying constantly to discover better methods of teaching, newer interesting devices, and more recent books for our retarded readers.

The Newton, Massachusetts Plan

Pupils with reading deficiencies in the Newton Junior High Schools[2] are classified into three groups:

Group 1. Those pupils who are one or more years retarded in reading ability and whose IQs are under 90.

Group 2. Those pupils who are one or more years retarded in reading ability but who have IQs of 90 or above.

Group 3. Those pupils who are not one or more years retarded in reading ability but whose reading ages are not so high as their mental ages.

Instruction of Group 2. In organizing their remedial reading program, attention was first given to Group 2, which is composed of pupils with good mental ability but poor reading proficiency. A full-time teacher of remedial reading was employed to handle the instruction for this group. The first year, 103 pupils were selected who

[2] C. E. Drake, "Reading and Remedial Reading in a Junior High School," *Bulletin of the Department of Secondary-School Principals,* National Education Association, Vol. 23, March, 1939, pp. 100–111.

were at least two grades retarded in reading. These were placed in ten instructional groups which met two periods per week. Careful diagnoses were made of the specific reading disabilities of each pupil. Among the tests which were used are the *Iowa Elementary Reading Test,* the Keystone telebinocular, and the Western Electric audiometer. The remedial work consisted of (1) wide reading of books of seventh-grade interest level but of fourth- or fifth-grade difficulty, and (2) exercises designed to improve specific reading skills, such as how to use the dictionary, and how to select the central idea in a paragraph.

This initial work with Group 2 proved so successful that it has been expanded to include not only seventh graders but also eighth graders in the Newton Junior High Schools. The general plan of including in these special small groups of retarded readers only pupils with IQs of 90 or higher has been continued, and was in its fourth year of operation at the time the report was made. One full-time teacher who is specially prepared in remedial reading continues to handle the work.

Instruction of Group 1. Pupils of both low mental ability and low reading ability were next given attention. They were placed in slow seventh-grade sections which were taught by regular teachers. Each of these teachers was given a copy of a bulletin entitled "The Specific Skills To Be Developed in a Reading Program." He was also supplied with each pupil's IQ, and his scores on the six subtests of the *Iowa Silent Reading Test* (Elementary Form). Furthermore, these teachers who were given slow divisions held conferences with representative teachers of each subject-matter field to receive their suggestions as to ways of improving reading skills in the various content subjects. Following this preliminary work, the teachers of the slow sections carried on a program of remedial reading in connection with their instruction in the usual school subjects. Specifically the procedure was as follows:

> In English, special attention was given to vocabulary building and vocabulary drill. The new books presented simple reading materials on an

interest level suitable for seventh graders. Single copies of reading books were bought for classroom libraries. Use of the central school library was encouraged and classes were taken to it for instruction in locating materials. Indexing was also emphasized.

In social studies, a book entitled *Builders of Our Nation* was selected as being admirably suited to the needs and abilities of slow divisions. A Miss Hall of Boston developed work sheets for use with this book. . . . Vocabulary work was stressed. Classes were referred to the school library for simple research projects.

In science, vocabulary building was stressed, as well as the power of locating specific information in the science portions of reading.

In arithmetic, the problems involving arithmetical computation presented reading difficulties. Emphasis was placed on building a simple mathematics vocabulary. By gaining word mastery before problems were solved, problems involving the use of fundamental arithmetical computation became more meaningful. . . .

In general, none of these subject teachers impressed their pupils with the fact that they were teaching or improving reading skills. Rather, these skills were expected to be an outgrowth of regular classwork which had been adapted to the interests of these pupils.[3]

This plan of dealing with poor readers of low mental ability was so satisfactory during its first year of operation that it likewise has been made a permanent part of the school organization.

Instruction of Group 3. At the time of Mr. Drake's report no organized program had been worked out to provide for those pupils who are up to grade in reading ability but whose mental capacities far exceed their reading performance. However, since all teachers in the Newton Junior High Schools have been made aware of their responsibility for teaching reading to all pupils, it is likely that this group has not been entirely slighted.

Roosevelt Junior High School, Aberdeen, South Dakota

The remedial reading program has been described by the teaching staff of the Roosevelt Junior High School in a recently published bulletin.[4] Pupils were selected for the remedial work on the basis

[3] Drake, *op. cit.*, pp. 107–108.

[4] *A Remedial Reading Program for the Junior High School,* Aberdeen, South Dakota, Public Schools Publication, price $2.00.

of the *Iowa Every Pupil Test of Basic Skills*, given in the seventh, eighth, and ninth grades. The test results showed that approximately 20 to 30 per cent of the pupils in these grades were in need of training in reading. Those pupils who gave evidence of reading retardation were assigned to remedial classes which contained from twenty to thirty pupils each. The pupils of each section remained together for all classes throughout the day. The average reading comprehension of the seventh-grade remedial group was below the fifth grade. The average reading comprehension of the eighth-grade remedial group was 5.9, while the average reading comprehension of the ninth-grade group was 6.8. Thus for the entire group, the mean retardation was about two grades.

The Plan of Remedial Instruction. The remedial instruction which was given the poor readers was carried on through two channels. First, instruction was given in regularly scheduled departmental classes; second, remedial instruction was given in English classes. Under the departmentalized plan in operation in this school, seventh graders received their instruction from five different teachers. Each subject-matter teacher took it upon himself to give specific remedial instruction to each of the poor readers in his class. Since the poor readers had been placed in homogeneous groups at the outset, a given teacher would have nothing but poor readers in some of his sections. Several departments in the school worked out suggestions for remedial procedures which could be used in their own fields. Among the departments which worked out special remedial techniques were the English, mathematics, general science, home economics, and industrial arts departments. Perhaps the largest amount of instruction in reading techniques was provided by the English teachers. Approximately 50 per cent of the total time devoted to English was used for remedial instruction in reading. This necessitated a rearrangement of the regular English course of study for grades 7, 8, and 9. Literature requirements in the regular course of study were dropped and remedial reading was inserted in its place. The instructional materials used in the English classes were chosen from the following:

Reading to Learn, Books I, II, III, by Yoakam, Bagley, Knowlton, The Macmillan Company.

Standard Test Lessons in Reading, Books IV and V, by McCall-Crabbs Bureau of Publications, Teachers College, Columbia University.

My Weekly Reader, Edition No. 5, American Education Press, Columbus, Ohio.

Current Events, American Education Press, Columbus, Ohio.

Results of the Program. The pupils were retested at the end of the school year by means of comparable forms of the Iowa Every Pupil Test. The data reveal definite growth in reading ability in all of the grades and classes. Particularly significant gains were made by those pupils of average and above-average mental ability.

Special Features of the Program. The remedial program carried on in this junior high school had the following essential features: (1) the program was inaugurated and carried out without the assistance of a trained specialist, (2) the program was administered without disrupting the regular school schedule of study, (3) pupils receiving remedial instruction were not handicapped by the omission of planned subject matter, (4) each department participated in and was held responsible for remedial instruction in reading, (5) the program was successful in developing reading consciousness on the part of all the teachers in the school.

The Free-Reading Course

An excellent example of an elective course in "free reading" is one introduced into the curriculum at the Longfellow Junior High School, Morris, Minnesota.[5] The course was organized with the following objectives in mind: (1) the stimulation of interest in reading for fun, (2) development of a wide field of interests in reading, and (3) the encouragement of better reading habits. The teacher of the course describes it in the following words:

The first objective was most easily attained. The interest was there, or the pupils would not have registered for the class. What remained was to

[5] Margaret Ludenia, "Reading Just for Fun," *School Review,* Vol. 48, March, 1940, pp. 165–167.

keep that interest alive. One of the most successful ways was the giving of voluntary oral reports by members of the class. The atmosphere of the class was always informal, and even the most backward pupils felt no hesitancy in telling about the "swell book" he was reading. It was not required that the report take any particular form; it was enough if the author and the title were clearly stated. At this stage in the experiment the only formal requirement was a notebook record of books read during or because of the course. This record gave the author, the title, the main characters, and the pupil's rating, or judgment of the book, as well as the date when the book was read.

At the beginning of the school year a testing program for the entire junior high school was set up. The New Stanford Reading Test was used to determine the reading abilities of all the pupils. Two interesting facts were brought to light. The first and more important was that the pupils who had elected to take this course were not the best readers but those of mediocre and low reading abilities. The second was that, with few exceptions, the pupils were below grade level in reading ability because of vocabulary deficiencies. Naturally this finding led us to give one day each week to more formal reading training. Word games, pronunciation, and meaning "spell downs" were engaged in enthusiastically by the group. In one drill that was popular, the class members clipped articles from newspapers and brought them to class. They were allowed to clip any article that they thought interesting or unusual. In class they were given an opportunity to read the clipping to the class. Each pupil was responsible for the meaning and the pronunciation of all the words in his article, but he could ask any member in the group to explain any word that it contained. . . .

Book Week gave the teacher an opportunity to introduce new types of books to the class, for they were allowed to spend the class period at the public library browsing among the new books that were on display for the week. The day following this visit was spent discussing the new books, with both teacher and pupils contributing to the conversation. At the end of the period pupils made out lists of books that they intended to read.

As the year progressed, the class procedure varied only enough to introduce more stimulating methods and to discard those that were unsuccessful.

The success of the "Free Reading Course" was confirmed when at the end of the year both an objective and subjective evaluation of the work was made. All pupils in the junior high school were retested by

means of another form of the *New Stanford Reading Test* and comparisons were made between the gains shown by the free-reading group and those made by the remainder of the student body. The results showed that the pupils who had been in the free-reading class made approximately twice as much improvement in reading ability as did those not in the class. This outcome was produced despite the fact that the members of the reading class as a whole possessed lower general intelligence and rated lower in general educational achievement than the members of the control group. Those who observed the work that was carried on and the subsequent behavior of the pupils enrolled in the course noted also many somewhat more intangible results. Among them were an increased interest in reading, an awareness of the necessity for further growth in reading, and an increased development of the library habit.

A Survey of Remedial Reading Practices in Junior High Schools

In an effort to discover trends in remedial reading at the junior-high-school level, Miss Elizabeth Hills under the direction of the writer conducted a nation-wide investigation.[6] A three-page questionnaire was sent to junior high schools in the 331 cities of over 10,000 population which were listed in *Patterson's American Educational Directory* as having junior high schools. Whenever more than one junior high school was listed for a city, the one mentioned first was selected, unless the system employed a special superintendent in charge of junior high schools only. In that case the questionnaire was sent to him. The schools included in the survey represent 43 states and the District of Columbia.

The questions asked of the schools were as follows:

1. How is your remedial reading program organized? (Special section of English, class in remedial reading, small coaching groups, indi-

[6] Elizabeth A. Hills, *The Teaching of Remedial Reading in Junior High Schools; An Investigation of Methods, Materials, and Remedial Reading Programs in Junior High Schools of the United States,* Master's Thesis, University of Illinois, Urbana, Illinois, 1943.

vidual case studies, or what?) Describe your method of handling retarded readers.
2. What preparation and qualifications do your remedial teachers have?
3. In what manner are pupils selected for remedial work?
4. Is attendance voluntary or compulsory?
5. What is the length of the class period, and what is the number of periods per week?
6. How much time is devoted to the course? (A semester, a year)
7. Is credit given for the work?
8. What especially effective methods have you found for interesting pupils in the work, and for overcoming their difficulties?
9. What textbooks and workbooks do you use with the retarded readers in each grade?
10. What supplementary books or collateral reading books have been popular with the boys in retarded reading groups? With the girls?

Replies to these questions were received from 146 junior high schools. In the next few pages a brief summary of the answers is given.

Organization of the Remedial Program. Of the schools answering the questionnaire, eighty clearly indicated that they were making special provisions for their retarded readers. The types of provisions made were as follows:

METHOD OF ORGANIZATION	NUMBER OF SCHOOLS
1. Corrective reading class	29
2. Special English section	19
3. Small coaching groups	10
4. Individualized instruction within a heterogeneous English or reading group	7
5. Individual tutoring	4
6. Remedial instruction in each content subject	4
7. Fused course in English and social studies	3
8. Remedial English—social studies—mathematics course	1
9. Spelling-reading class	1
10. Corrective reading in the public speaking class	1
11. Remedial instruction in a social living course	1

It is apparent from an analysis of the foregoing tabulation that remedial reading activities in junior high schools are most frequently

carried on in corrective reading classes and special sections of English. It is interesting to note, however, the wide diversity of practice which prevails.

Preparation and Qualifications of Teachers of Remedial Reading. From the replies to the question on teacher qualifications it would appear that teachers of remedial reading in junior high schools as a group are not highly trained experts in this field. However, a large percentage of them have had some special preparation for their work as can be seen below.

QUALIFICATIONS	NUMBER OF SCHOOLS EMPLOYING REMEDIAL TEACHERS WITH THESE QUALIFICATIONS
1. Some special work in remedial methods	37
2. Specialization in remedial methods	3
3. One course in remedial methods	3
4. Study of developmental techniques in reading	16
5. Professional reading and conferences on the subject	6
6. An English major or English teacher	28
7. A master's degree	13
8. Work toward a doctor's degree	2

Manner of Selecting Pupils for Remedial Work. A variety of methods are employed for selecting pupils who are to receive remedial reading instruction. The method most frequently employed involves the use of school records and the opinions of teachers. The second most frequent procedure consists of the use of standardized reading tests. Other methods reported include the combination of reading tests, records, and teachers' opinions; reading test and intelligence test; teacher's opinion, intelligence test, and reading test; teachers' opinions, intelligence tests, and school records; and library reading, standard tests, and teachers' opinions.

Is Attendance Voluntary or Compulsory? Seventy schools answered this question. Of these, 58 stated that attendance is compulsory, while 12 indicated that the remedial reading work is on a voluntary basis. Remarks made by several principals in schools using the voluntary method suggest that little or no difficulty is encountered

in interesting the retarded readers in the course. Three principals state that the poorer readers seem pleased at the opportunity offered and enroll of their own free will. One principal reports that there is always a waiting list in his school of pupils who are eager to enroll in the reading improvement classes.

Length of Class Period, and Number of Periods per Week. The length of the individual class periods varies from school to school. The shortest class period reported in the survey was 30 minutes while the longest was one hour and 30 minutes. The median amount of time given to the class period is 50 minutes. The number of periods per week devoted to remedial reading classes range all the way from one to five with the median practice being three sessions per week. Three schools stated that the length of the class period and the number of periods per week was adjusted according to the individual needs of the pupils.

Length of the Course. Some of the reporting schools conduct the remedial reading course for as brief a time as one-fourth of a semester while others continue it for as long a span as three years. Fifteen of the schools state that pupils are retained in the course until they have reached a reading level sufficient for successful work in their regular classes, or until they have made as much improvement as can be expected when their mental ages are taken into account.

Is Credit Given for the Course? Of the 72 schools which replied to this question, 52 indicated that regular credit is given for the work. Nineteen replied that no credit is given, and one explained that full credit is given in grade 9 but not in grades 7 and 8.

Effective Methods for Interesting Pupils in the Work and for Helping Them Overcome Their Difficulties. Many sound and workable procedures were suggested. A few of them are listed as follows:

1. Providing pupils with an abundance of easy interesting reading materials.
2. Making use of free-reading periods.
3. Placing attractive book jackets on the bulletin boards, and calling the attention of pupils to them.
4. Discussing movies which have a connection with the pupils' reading.

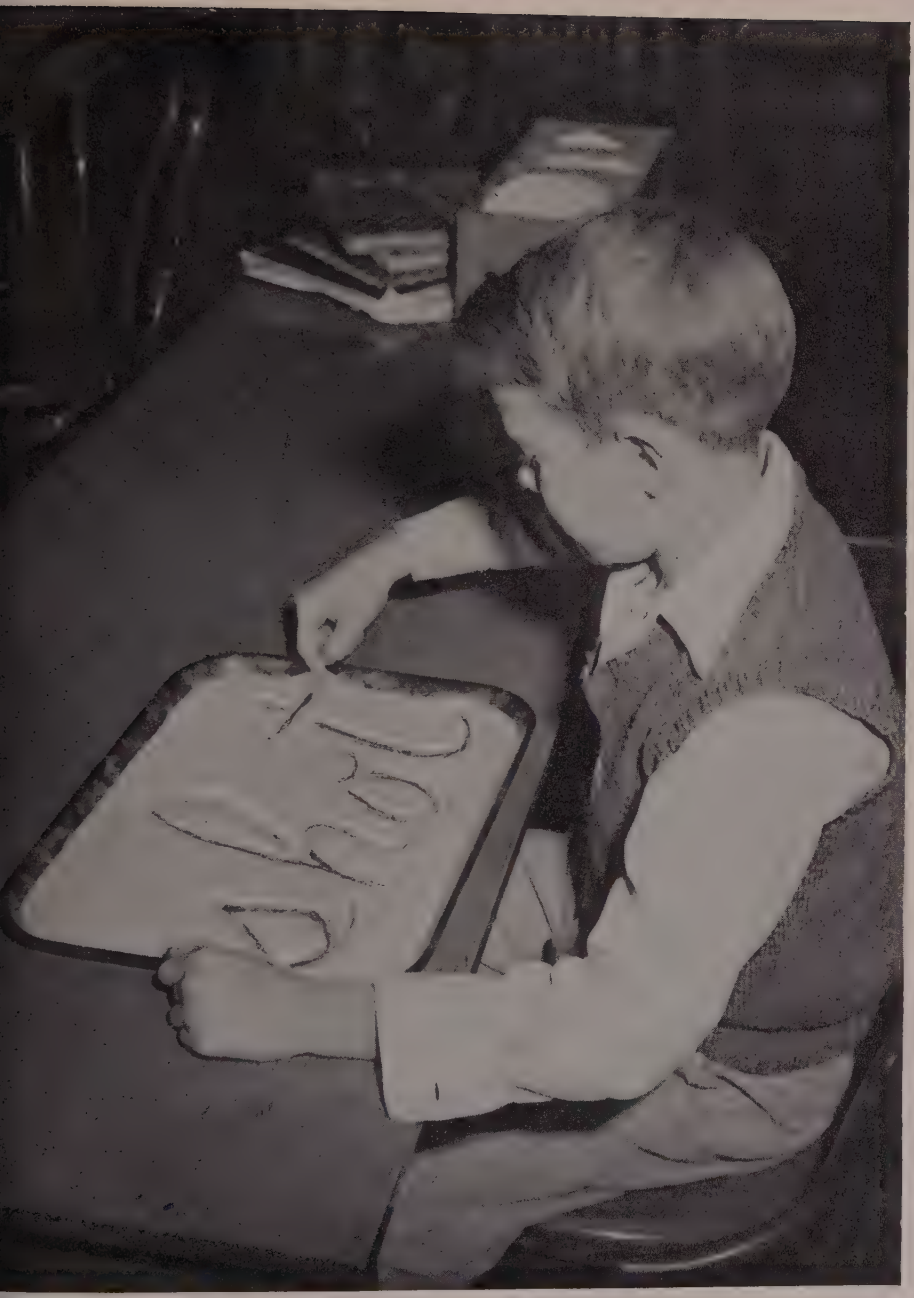

PLATE 7. This Child Is Learning to Read by the Kinaesthetic Method

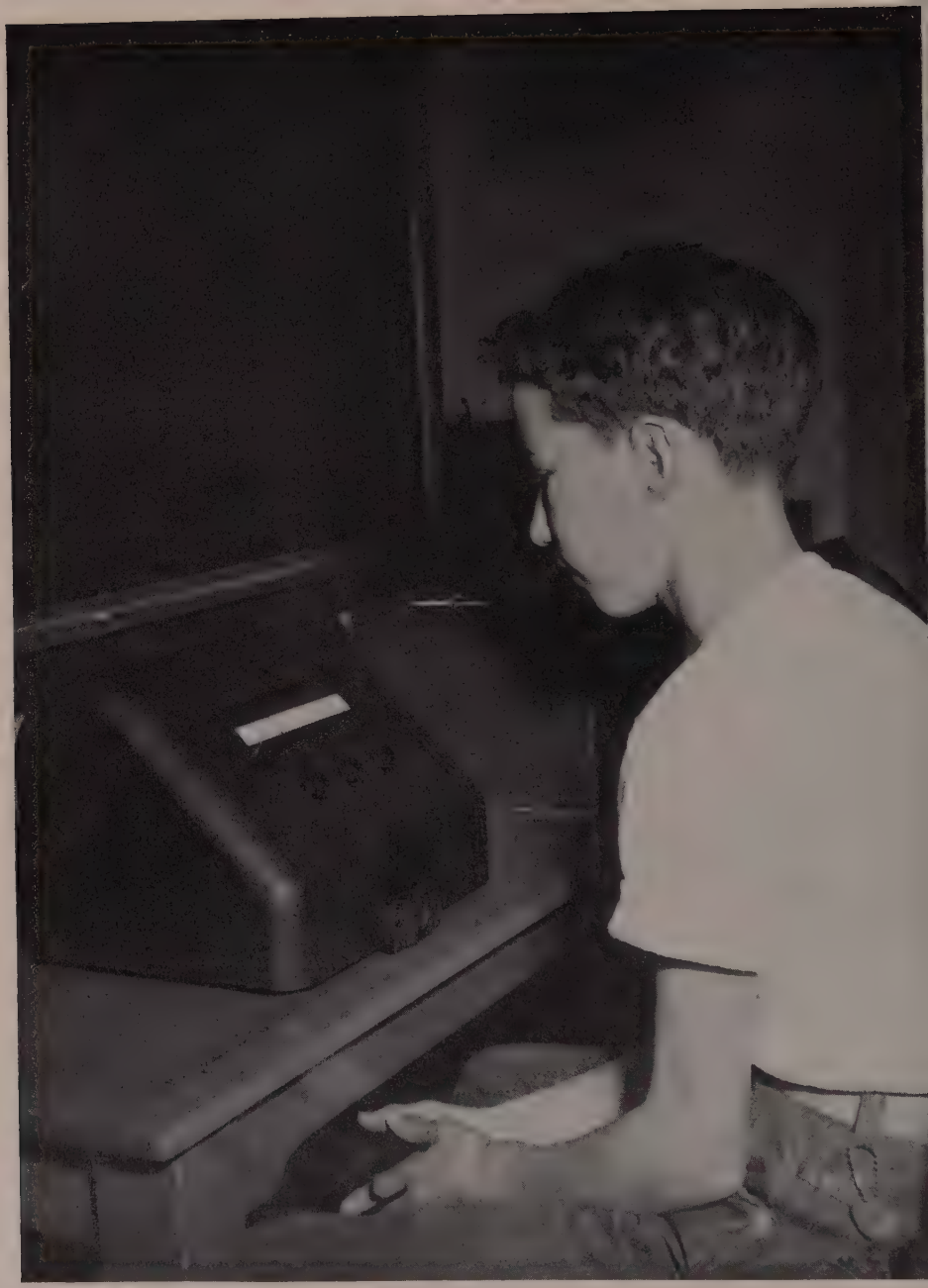

PLATE 8. Increasing Silent Reading Rate by Means of the Metronoscope

5. Previewing material both in required and pleasure reading. Such questions as these were suggested: "In this chapter we shall hear about a mysterious message. Who wrote it? What does it say? Who receives it?"
6. Informing pupils of their progress by means of tests, graphs, and charts.
7. Making recordings of pupils' oral reading at the beginning of the remedial work and at subsequent intervals.
8. Using games and plays to add variety to the work.

Textbooks and Workbooks Used with Retarded Readers. The ten most commonly used textbooks and workbooks according to the survey are the *Let's Read* series by Roberts, Rand, *et. al.; Standard Test Lessons in Reading* by McCall and Crabbs; *Flying the Printways* by Hovious; the *Growth in Reading* series by Pooley and Walcott; *Experiments in Reading* by McCall, Cook, and Norvell; *Improving Your Reading* by Wilkinson and Brown; *Adventure Bound* by Persing and Leary; *Driving the Reading Road* by Spencer, Johnson, and Robinson; *Getting the Meaning* by Guiler and Coleman; and *Roads to Reading* by Mack, McCall, and Almack.

Popular Supplementary and Collateral Reading. For the boys the ten books most frequently mentioned are *Silver Chief, Dog of the North* by O'Brien, *Lorna Doone* (simplified edition) by Jordan, *et al., Let's Read* by Roberts, *et al., When Washington Danced* by Stratton, *et al., T Model Tommy* by Meader, *Desert Treasure* by Heffernan, *et al., Lad, a Dog* by Terhune, *Smoky, the Cowhorse* by James, *Tom Sawyer* by Clemens, and *On Jungle Trails* by Buck. The ten books most enjoyed by the girls are *Lorna Doone* (simplified edition), *Six Great Stories* by Moderow, *et al., When Washington Danced, Mrs. Wiggs of the Cabbage Patch, Let's Read, Desert Treasure, Real Adventures* by Theisen and Leonard, *The Attack and Other Stories* by Buckingham, *Heidi,* and *Peggy Covers the News.*

Summary

The remedial reading programs in four junior high schools are described at some length in this chapter. At Niles, Michigan, the

weekly schedule consists of work-type exercises on Mondays; "literature" on Tuesdays, Wednesdays, and Thursdays; and "free reading" on Fridays. An outstanding characteristic of the Newton, Massachusetts, program is the way in which pupils are grouped for instructional purposes. Group 1 is made up of poor readers whose IQs are below 90; group 2 is composed of retarded readers whose IQs are above 90; and group 3 is for pupils who are not below grade in reading but who do not read as well as they should considering their mental ages. The program at the Roosevelt Junior High School of Aberdeen, South Dakota, is successful in developing a reading consciousness on the part of all teachers. At this school, each department not only participates in planning the program but also gives specific instruction in reading. At the Longfellow Junior High School in Morris, Minnesota, an elective course entitled "Free Reading" is successfully employed.

The nation-wide survey of remedial reading practices in junior high schools revealed a number of interesting trends, as follows:

1. Sixty per cent of the schools making provision for retarded readers do so by means of corrective reading classes or special sections of English.

2. Pupils are most frequently selected for such classes on the basis of school records and the opinions of their teachers, although standardized reading tests are also widely used for this purpose.

3. In 82 per cent of the schools, attendance is compulsory once it has been determined that the pupil needs special assistance in reading. The remainder of the schools carry forward their remedial work on a voluntary basis.

4. The median class period is 50 minutes long and meets three times per week.

5. In 72 per cent of the schools regular credit is given for classwork in remedial reading.

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Chapter 7

Remedial Reading Programs in Senior High Schools

Nation-Wide Survey of Practices

In order to discover outstanding remedial programs that are in operation in senior high schools, the writer conducted a nation-wide survey. Personal letters were sent to the principals of all high schools in the United States which are located in cities of 20,000 population or over with the request that they describe any noteworthy remedial programs they might be carrying on. Altogether 1,090 separate letters were typed and mailed. A copy of one of these is reproduced below:

Dear Mr. ———:

I am very much interested in the remedial programs which have been developed by the better secondary schools, since I teach a graduate course which deals with this problem. Is your school doing work in remedial instruction which you consider to represent advanced practice? If so, I would be grateful to you for any information you could give me concerning the program you are carrying on.

Some of the specific questions which interest me are these: (1) What do you do with pupils in your high school who are unusually poor in reading ability? (2) What books (names and publishers) have your teachers found that are enjoyed by your retarded readers? (3) What provision do you make for pupils who are deficient in the fundamentals of arithmetic, spelling, handwriting, English usage, and other tool subjects? (4) How many pupils are at present enrolled in your school?

If you have any printed or mimeographed materials telling about re-

medial work in your school, I would very much appreciate receiving copies of them.

A major purpose of this chapter[1] is to present the answers which the schools gave to question number 1 of this letter; namely: *What do you do with pupils in your high school who are unusually poor in reading ability?*

Three hundred and seventy-nine schools located in 38 states[2] and the District of Columbia sent in replies, and in most cases gave very complete descriptions of their plans for dealing with retarded readers.

TABLE VIII

Procedures Employed by 379 High Schools for Ministering to Pupils with Severe Reading Handicaps

METHOD FOLLOWED	NUMBER OF SCHOOLS
Do nothing or very little	75
Up to teachers	26
English teachers in regular classes	34
Special sections of English and classes in remedial reading	198
Specialist who coaches individuals or small groups	28
Other methods	9
Not definitely stated what method is used	9
	N = 379

In Table VIII are found the chief methods employed by these 379 high schools for taking care of their unusually poor readers. It is obvious that the most widely used administrative procedure for assisting deficient readers is that of organizing special sections of English where an emphasis is placed upon the improvement of reading. Another method quite commonly used is for the English teachers to

[1] Some of the descriptions in this chapter are taken from Blair, Glenn Myers, "Remedial-Reading Programs in Senior High Schools," *The School Review*, Vol. 49, January, 1941, pp. 32–41.

[2] The states are: Alabama, Arkansas, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Montana, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia, Washington, West Virginia, Wisconsin.

attempt to carry on remedial work in connection with the activities of the regular class. It is clear that the brunt of the teaching of remedial reading falls to the teachers of English.

In the next few paragraphs, a more detailed account will be given of various plans being used by the schools to improve the reading abilities of their pupils.

Schools Doing Nothing or Very Little for Their Retarded Readers

Table VIII shows 75 of the reporting schools to be doing nothing specific or at least very little for their retarded readers. These schools either made statements directly to that effect, or it was clear from the context of their letters that such was the case. The great majority of these schools, although admitting that they were doing little at present for pupils of poor reading ability in their schools, nevertheless stated that plans were under consideration for caring for this problem in the near future. Following are a few direct quotations from these letters:

"We have done practically nothing along the line of remedial work in reading. The entire problem indicated in your letter is just beginning to receive attention by the city's administrative staff."

"We have not done anything in the way of remedial reading in our school as yet, but we are looking toward such work in the near future."

"We would be interested in receiving a copy of the data that you acquire and any definite recommendations that you may finally make as a result of your study, because work in remedial programs will be developed without question in our school."

"We have no organized remedial program. Study is being made now."

"I would say that we have little definite material to offer. We trust the time will soon come when we can better care for these young people."

"We have no regular remedial class organized as yet, but are hoping to plan one for next year."

"At the present time we have no definite remedial instruction as a part of our English course. However, it is contemplated, because of an apparent need to organize some work in remedial reading."

"It is our intention to initiate our first remedial program, which happens to be in the field of reading, next year."

Many more statements of the same type as those just given could be included. Those schools not now having remedial reading programs were practically unanimous in expressing their interest in such work, and in indicating their hopes that this work would soon be initiated in their schools.

Schools Leaving Responsibility for Remedial Work to Individual Teachers

Twenty-six schools replied that certain remedial work in reading was being done, but that there was no definite plan. Instead the teachers did what they could in whatever way they saw fit. In most of these cases, the schools expressed a dissatisfaction with this method, and hoped that they would be able to do something more specific in the future. Some of the typical remarks made by such schools are:

"While we have problems of poor reading in high school, we have not as yet made provision for special care of them, other than what informal work the classroom teachers may do."

"I am sorry to say that ——— High School has not organized a general remedial program. So far the answers to your questions lie with the individual teachers."

"I regret that we are unable at present to undertake this most necessary work. Classroom teachers do, of course, recognize deficiencies in the various tool subjects, and, as far as possible do remedial work, but we have no recognized procedure for this sort of thing."

Schools Providing for Remedial Reading Activities in Regular English Classes

Those schools which do not employ any method of sectioning pupils according to ability or achievement expect the English teachers to cope with cases of severe retardation in reading in connection with the regular work of the class. Thirty-four schools included in this survey indicated that this was their method of handling the "reading problem." The following direct statements from the communications of these schools illustrate their point of view and methods of procedure:

"Our general policy is remedial work within the class rather than to segregate pupils for special weaknesses."

"We try to correct our reading through the regular English classes. Our remedial work is not adequate, but we try to correct these difficulties as much as possible through supervised study."

"Teachers of English give personal counsel, and require less difficult collateral reading."

"We have no special arrangements for students who are poor in reading ability, except that teachers in the English classes are expected to give them special individual attention."

"While the better readers are continuing with the *Idylls of the King*, the slow readers are using *Roads to Reading* by Mack, McCall, and Almack."

"While we have special books for retarded students, we do not have isolated remedial work. It has been our policy to incorporate the remedial reading in the work and teaching of the regular English classes."

A more detailed description of the programs in two of the reporting schools follows.

Sumner High School, St. Louis. This school which has an enrollment of 1,380 pupils reports that all remedial instruction in English, exclusive of speech correction, is carried on in the regular English classes. As part of the regular classroom work, provision is made as follows for pupils who are unusually poor in reading ability:

1. Easier reading material is provided.
2. Assignments are varied so that the quantity and quality of reading required is suited to the individual needs.
3. In study assignments, individual help is given to those who need it.
4. Free reading periods are scheduled regularly at which times the pupils are encouraged to satisfy interests at their own reading level.

Phoenix Union High School, Phoenix, Arizona. At Phoenix High School the basis of the program is wide reading by all students of whatever ability in all the ninth-grade English classes. The students choose under the guidance of the teachers the books which they wish to read. Each is urged to select books dealing with subject matter in which he has an interest and which seem to be on his level

of reading ability. From this start the teacher seeks to guide the child into reading on an increasingly more mature level. They do not indulge in any microscopic analysis of selections known as "classics." The general testing program consists of one or two reading tests given to all ninth-grade students in September and again in May. The September tests are used for diagnosis and prognosis, and the May tests indicate what progress has been made in the teaching and learning during the year. The Phoenix program is a definite attempt to improve the reading ability of all students through a class teaching program supplemented by whatever individual counseling they have time for.

Although much good work can be accomplished by capable teachers using the regular classroom method, it is apparent that great difficulties are encountered when they are called upon to minister to the needs of children who often range in reading ability all of the way from the third grade to the twelfth. As a rule this method of providing for pupils who are unusually retarded in reading ability is somewhat unsatisfactory unless it is supplemented by other methods. The average teacher seldom has the time or the special training required for dealing with the more serious cases. The Phoenix High School supplements its regular program by having the most deficient readers receive additional attention from a teacher who is a specialist and is in charge of the reading laboratory.

Those schools which provide for all levels of reading ability in the regular English classes find that the "free reading period" is a most essential part of the program.

Schools Utilizing Special Sections of English and Classes in Remedial Reading

This is by far the most widely used method of providing specific remedial instruction in reading.[3] Pupils who have been found to be

[3] Many schools referred to their special reading-improvement classes as being "classes in remedial reading." It was clear from the context of the replies, however, that in practically all cases these were in reality special English sections. They have therefore been grouped in this discussion with those classes specifically designated as "special sections of English."

deficient in reading ability are sectioned to these classes, where a deliberate and planned program for remedying these deficiencies is carried out. Frequently, English credit is given for the work. Pupils who show satisfactory progress are often returned to regular English classes after a semester or two. In some schools, however, they continue with some type of modified English course until they graduate. Many times the pupils are unaware that they are in special sections of English because the sectioning is carried on in the office before the opening of school, and is based upon data secured in an earlier grade or school. In some schools these special sections are for pupils who are above average in mental ability, but below average in reading achievement. In other schools, these classes are primarily provided for children of general inferior ability. There are numerous variations. Schools which section their pupils to classes on the basis of IQs, especially IQs based upon intelligence tests requiring reading, often find their classes to be grouped fairly homogeneously with respect to reading ability. Other schools place their pupils in these special courses only when they have demonstrated inferior achievement upon reading tests. Still other schools admit pupils to such classes primarily on the recommendation of teachers and employ few test data. Some of these classes devote practically their entire time to the improvement of reading, while others give considerable attention to remedying other fundamental English handicaps as well.

In order that the reader may have more adequate descriptions of the methods that are followed in organizing and conducting these remedial-reading classes, several of the actual programs being used will be presented in brief form.

Alhambra High School, Alhambra, California. In this school, courses in corrective reading are taught which are listed on the office records as "English ZZ." Pupils are selected on the basis of their scores on the *Sangren-Woody Reading Test* and their elementary-school records. In general those pupils whose reading ability is below the seventh-grade level are admitted to the work. At the end of either the 9B or 9A semester it is possible for a pupil to transfer into a regular English class if the teacher of the English ZZ class so recom-

mends. This procedure is followed only when a pupil has made marked progress and indicates that he can handle the reading required in the regular class.

Soon after the corrective classes are organized each pupil's eyes are checked with the Keystone Ophthalmic Telebinocular and his ears are checked by means of an audiometer. Parents are notified in those cases where the need for a further examination by a specialist is indicated. Pupils who are suspected of having poor health or physical defects are referred to the Health Department. Pupils whose parents are financially unable to provide glasses or an eye examination are also referred to the Health Department. A study is also made of the pupil's home conditions, emotional adjustment, educational history, and interests.

The student is graded according to the effort he puts forth as well as to the progress which is made in both reading ability and personality development. Failures are practically nonexistent and are given only in cases where there are excessive absences or total noncooperation. Each course receives five units of credit. The classes are kept small so that individualized instruction can be effectively carried on.

The basic textbook used in the course is *Let's Read* by Roberts and Rand. In addition, the following workbooks are used: *Adventure Trails* (fourth-grade difficulty); *Exploring Today* (fifth- to sixth-grade difficulty); and *Modern Living. My Weekly Reader* is also purchased for the classes. The pupils are extremely fond of it because it is easy to read and because the newspaper idea back of it makes it seem on an adult level. Several hundred books are available for free reading purposes. These include many titles which a pupil of third or fourth grade ability can read with ease and enjoyment. Among the interest centers touched by the books are the following: animals, people, radio, moving pictures, occupations, safety, automobiles, aviation, manners, the desert, nature study, hobbies, biography, health and hygiene, job ethics, community life and services.

The remedial reading course at the Alhambra High School is constantly undergoing revision and growth. In this way it can keep

abreast of the times and profit from its experiences which accumulate from year to year.

Great Falls High School, Great Falls, Montana. The assistant principal of this school tests all eighth graders in Great Falls, Montana, using the *Unit Scales of Attainment Reading Test.* Upon coming to high school those pupils scoring lowest are segregated into two or three sections of Freshman English which the school authorities refer to as "English reading classes." The pupils do not realize that there is anything special about these classes. In these classes pupils are enrolled whose reading comprehension grades range from 3A up through 7A. The pupils are tested at the beginning of the course with the Van Wagenen-Dvorak *Diagnostic Examination of Silent Reading Abilities,* and a profile chart is made showing each pupil's special weaknesses. The remedial work that ensues is especially planned for each individual to correct those deficiencies which the diagnostic test has revealed. This school has started to build up special room libraries for the use of these classes. Some of the books that were added to the class library during the past year were: *Valiant, Dog of the Timberline,* by O'Brien; *Sue Barton, Student Nurse,* by Boylston; *Caddie Woodlawn,* by Brink; *Understood Betsy,* by Fisher; *Smoky,* by James; and *Lorna Doone,* adapted by Jordan, Berglund, and Washburne. Retests which are made at the end of the school year invariably show marked improvements to have taken place in the reading skills of the pupils. One pupil is reported to have gained five years in reading ability, and others frequently gain as much as two or three years.

Rufus King High School, Milwaukee, Wisconsin. The principal sent the following request to each contributing elementary school in his area at the close of the school year: "Please list below the names of pupils who would benefit by being placed in an English class where special attention is given to the improvement of reading." Fifty-three of the 260 incoming pupils, about one-fifth of the group, were recommended by the eighth-grade teachers with the approval of the elementary-school principal. Because of conflict in individual schedules, only forty-eight of these pupils were able to enter the

two classes which were formed. A basic reader, *Flying the Printways* by Carol Hovious, was used for about three weeks at the outset. Each pupil became aware of his own difficulties and was ready to go to work surmounting them. In this frame of mind the classes began a study of the school library. Two films were shown to make the lessons more graphic; namely: *Found in a Book,* and *Books from Manuscript to Classroom.* One day a week thereafter, usually Friday, was spent in the library where each pupil gathered information required in one or all of his other school subjects. Once a week the pupils had a "special-interest" day, when all had a chance to expand and discuss their interests. Throughout this course the pupils engaged in wide reading of interesting material at the level of difficulty that each could master. The course was such a success that the school hopes to expand the program to include ninth-grade pupils in the second semester, as well as those in the first semester.

Washington Irving High School, New York City. The entering pupils in this school are given the *Stanford Reading Test* and grouped in English classes according to reading ability. The slower groups have vocabulary drill one day a week. Definite drill on roots, prefixes, and suffixes is part of this vocabulary-building program. During a recent term, posters showing word derivations were placed in conspicuous positions as a part of the vocabulary campaign. One day a week the pupils work on study-type materials using one of the following textbooks: *Let's Read!* by Roberts and Rand; *Reading for Skill,* by Broening and others; *Following Printed Trails,* by Hovious; and *Reading for Understanding,* by Bessey and Coffin. Another day each week the group uses the Metronoscope. This work is first motivated by showing each pupil his Ophthalmograph film and explaining how it indicates his need for better reading habits. The teacher reports that pupils who have never shown any sign of concentration in school sit entranced before the Metronoscope. A class discussion of the difficult words precedes the reading of each Metronoscope roll. The roll is run twice, the second time at a higher rate of speed than the first showing. A written test on the material follows the reading. Each week the speed is increased slightly. By the end of

the term, the pupils usually have attained the top speed of 300 words a minute.

One day a week is devoted to a discussion of the books read outside of school. Since books of all types are accepted—mystery stories, novels, and so on—the pupils find either in their class libraries or in the school or public library, books that interest them. Many of the poorest readers complete twenty books in a term. Opinion cards are provided upon which each pupil records his reaction to the books that he reads.

To aid the teachers who will have these pupils in their second and third terms, the first-term teacher makes a file for each child, which contains the Ophthalmograph records, reading-test records, Metronoscope tests, opinion cards, records of interviews, and other pertinent data.

Andrew Jackson High School, Borough of Queens, New York City. On the basis of a reading test, first-term pupils who are one year or more retarded are programmed to remedial reading classes. In these classs two types of reading experiences are stressed: (1) Work-type reading, and (2) free reading of books in which the pupils are interested. One teacher of these classes has endeavored to awaken a desire to read in her pupils by the use of a radio in the classroom. Programs about books and authors are listened to and discussed. Pupils are allowed to go to the school library during class time to secure books for free reading. Among the books most enjoyed by the retarded readers are simplified versions of the classics from the two following series: (1) "The Thorndike Library" (D. Appleton-Century Company) which includes such titles as *Anderson's Fairy Tales, Black Beauty,* and *Heidi;* and (2) the series edited by West (Longmans, Green and Company) which presents simplified and abridged novels by such authors as Scott, Dumas, Kingsley, and Haggard.

Kelly High School, Chicago, Illinois. Two teachers who have had special training for their work have charge of the remedial reading classes in this school. Each of these teachers conducts three such classes, making a total of six for the school. Those pupils whose reading achievement falls two grades below their general mental

level are selected for these classes. Two or three days of each week are devoted to work with the McDade Unitized Reading Materials. These consist of easy, short units of carefully graded reading materials which have been specially prepared for use in Chicago high schools. A routine has been worked out in such a way that the classes are entirely pupil-managed. Because of this, the teacher is free to respond to requests for individual assistance and to watch carefully the progress of the individual pupils. One day a week the teachers use *My Weekly Reader* or some other current news publication on the fifth- or sixth-grade reading level. At least one class period during the week is reserved for reading books on the free-reading shelf. It is customary to permit each pupil to place a record of the books he has read on a chart in the room. Pupils not selected for remedial work frequently request admission to these classes in order to improve their reading abilities. The teachers further report that there has been a decrease in behavior problems in the school since the classes were established.

The six school programs which have been briefly reviewed are similar in many respects to the other 192 programs which make special provision for their retarded readers by setting up special sections of English or remedial-reading classes. There are, however, certain unique features in most every program reported. For example, the teacher of the remedial reading class at the Camden (New Jersey) High School maintains in her classroom a small branch of the Camden Public Library, which supplies numerous books of special interest to the members of the group. In the remedial reading class of Murphy High School, Mobile, Alabama, dictaphones are used advantageously in motivating oral reading. At the Meriden High School, Meriden, Connecticut, the remedial reading work is not compulsory. Instead, pupils recommended for assistance are informed of the opportunity, and parents are notified in writing and asked if they wish the pupil to have the work. Pupils in the Andrew Jackson High School, Los Angeles, California, who fall below the sixth-grade in reading proficiency are placed in a reading-develop-

ment room for one or two hours daily. The Central Senior High School, Muncie, Indiana, supplements the work of their remedial reading class by having their most seriously retarded pupils receive individual help from selected graduate students of the Ball State Teachers College. Forty copies of the *Portsmouth Daily Times* come regularly to the special English section at the Portsmouth High School, Portsmouth, Ohio. The pupils spend approximately 30 minutes per day reading this paper which serves as the reading textbook for the course.

These illustrations show some of the diversity of practice that is found in schools using special remedial reading classes as their chief method of caring for the needs of retarded readers.

Schools Providing Specialists Who Coach Individuals or Small Groups

Twenty-eight senior high schools indicated that their chief method of caring for retarded readers consists in having a special teacher who works with individual cases or with small groups of pupils. Direct quotations from the replies of a few of these schools follow:

Central High School, South Bend, Indiana: "We have a special teacher who gives all her time to this work of teaching youngsters to read. We permit pupils who are taking English, and who are slow readers, to report to this teacher at least 30 minutes each day. We find that many pupils can in three or four weeks time improve their reading ability to such an extent that they are able to do good English work. These remedial groups are continually changing and the instruction is put on an individual basis."

Edwin Denby High School, Detroit, Michigan: "Each semester we make a survey of our entering ninth-grade pupils. We obtain the reading age for each pupil and also the mental age. For the pupils whose reading age is two or more years below their mental age, we have worked out a remedial program. These pupils are put in small groups for careful diagnostic study and remedial teaching. The number of these pupils each semester constitutes about

five per cent of the entire ninth-grade class. The size of the group in which the remedial work is done is usually somewhere from five to ten pupils. The remedial work is done by a teacher who has had some training in clinical procedures as well as in reading."

John Bartram High School, Philadelphia, Pennsylvania: "We are offering two-period-a-week classes in corrective reading. These are "Reading Laboratories" to which poor readers of all grades in the senior high school are sent on the recommendation of teachers of English. This work is conducted by a former supervisor of reading in our elementary schools."

Aliquippa High School, Aliquippa, Pennsylvania: "We have a full-time remedial reading teacher who works under the direction of the English department head. Those pupils below grade are given remedial instruction in groups of ten at regular periods each week. Our setup requires each pupil to take four major subjects meeting five times per week, minor subjects two periods per week, and physical training and health two periods per week. Our schedule difficulties in forming the small groups for remedial reading are met by taking the pupils out of one of their minor periods already scheduled."

Arlington Heights High School, Fort Worth, Texas: "The remedial work which we do, is done by special teachers in a clinic held at a special period each day. The most useful clinic we have found to be the reading clinic."

George Washington High School, Alexandria, Virginia: "We have a special teacher assigned during the activities period to take care of the corrective reading work."

Central High School, Sheboygan, Wisconsin: "This year a reading clinic has been organized to which retarded readers come twice every week for a period of 30 minutes each time. This system has been quite successful, the greatest drawback probably being that not all of the retarded readers can be handled. Plans which will in all probability enlarge the program so that all the retarded readers can be handled, are now being made for next year."

Other Methods

Several schools reported procedures for assisting their deficient readers which could not be easily classified under any of the preceding headings. At the Abraham Lincoln High School, Los Angeles, California, the remedial reading is taught in connection with "Social Living Classes." These classes are organized according to IQ and reading ability. All students take Social Living Classes, but special emphasis on the improvement of reading is given in those sections which contain the poorer readers. A graduating Senior, upon finishing four years of work, receives a *diploma* or a *certificate of completion.* One of the requirements for a diploma is that the pupil must be able to read with tenth-grade proficiency or above. A pupil who fails to demonstrate this level of reading ability receives the certificate of completion.

Mirabeau B. Lamar Senior High School, and Stephen F. Austin Senior High School of Houston, Texas, report very carefully worked out plans for directing reading and study through laboratory reading classes. Pupils having difficulty with either social studies or English are assigned to one teacher, while students having difficulty with mathematics or science are assigned to a different teacher. Pupils from grades 9 and 10 and even grade 11 work together in these laboratory classes under the direction of the teacher. These classes are regularly scheduled throughout the semester. The work of the course centers in a series of problems which the pupils with the help of the teacher try to solve. Each problem is stated as it appears to the individual pupil in the class. Some of these problems are as follows: (1) "Why Do I Have Difficulty in Doing My Regular Classroom Assignments?" (2) "How Can I Improve the Conditions under Which I Study?" (3) "How Can I Find Information in Books?" (4) "How Can I Find Books and Other Reading Materials in the Library?" (5) "What Is the First Step I Should Take in Trying To Improve My Reading and Study Habits?" (6) "How Can I Increase My Vocabulary?" After each pupil finds out what is wrong with his reading and work habits,

he immediately proceeds to develop new habits to take the place of the old.

Six of the reporting schools indicated that whatever remedial work they did was carried on before or after school hours. Some typical replies are as follows:

"If pupils are so poor in reading ability that they are retarded in their regular English class, they are assigned to a make-up class which meets one day a week for forty-five minutes after school. Here the pupil is given individual instruction."

"The plan that is used in this school requires each teacher to remain one afternoon each week after school to give individual instruction to pupils who need it. The teachers of English remain on Monday, teachers of science on Tuesday, and so on. By staggering the subjects over the five school days, it is possible for a pupil to obtain remedial work in all subjects over a period of a week."

"Our teachers in English, as well as teachers in other subjects, have conference days on which they meet retarded pupils either before or after school and undertake measures to correct poor reading."

This method of scheduling remedial work is obviously a most unsatisfactory procedure. Any activity so important as learning to read should certainly find a place in the regular school program.

Administering the Remedial Reading Program

The descriptions of remedial reading programs which have been included in this and the previous chapters clearly show a diversity of practice so far as administrative details are concerned. This is not necessarily bad. Each school faces a unique situation and should adjust its program accordingly. An administrative procedure which will work in a large school might be totally inappropriate in a smaller school, and vice versa. Considerations of staff and the characteristics of the pupils involved, as well as many other factors, exert an influence upon the nature of the administrative program which is set up. There are, however, a few basic practices and principles which are common to most successful programs. These can be justified both on the basis of experience and psychological theory. For example,

to be successful the plan must be so administered and organized that no pupil is stigmatized or made to feel inferior to other pupils. If special classes are formed for poor readers they should not be labeled "remedial" or in any other way which would cast reflection upon the pupils enrolled. Another basic principle of remedial teaching is that the work should be incorporated into the regular curriculum of the school. Remedial work should not be something which is added to a pupil's already heavy schedule. It should be an integral part of his program. More important work should come before the less important even if certain traditional courses have to be omitted entirely. Numerous other principles which should serve as a guide in developing an administrative program for remedial teaching have been set forth in the earlier chapters. The administrator who is well schooled in educational psychology and the principles of mental hygiene will realize that the welfare of the pupil is his prime consideration and is the only justification for any administrative procedure or routine that may be put into effect.

Thompson conducted an investigation which had for its purpose the discovery of sound principles of administering remedial programs.[4] Among other things, he (1) studied and evaluated the remedial programs of twenty-four Nebraska and Utah high schools, (2) surveyed the literature and noted successful practices which were there reported, (3) wrote letters to approximately 150 leaders who were interested in remedial instruction and secured their opinions. On the basis of this study he has drawn up a list of specific administrative procedures which he believes represents advanced practice. His suggestions should be of value to the administrator or teacher who must assume the responsibility for organizing a remedial reading program.

These suggestions in question and answer form are reproduced below:

1. How shall the program be articulated with the rest of the school activities?

[4] R. B. Thompson, "The Administration of Remedial Programs," *Educational Administration and Supervision,* Vol. 27, March, 1941, pp. 226–228.

a. Class should be scheduled as are other regular classes.
b. Class should not be designated in any way so as to embarrass pupils in it.
c. Pupils' and teachers' regular load of work should be lightened to give time for the remedial work.

2. What shall be the preparation and qualifications of remedial teachers?
   a. Teacher should be trained in remedial methods as well as subject-matter methods.
   b. If remedial methods classes are not available, teachers should spend some time in personal preparation by the study of professional books on remedial methods.
3. What shall be the manner of selection of pupils for the remedial course?
   a. Pupils should be selected on the basis of (1) intelligence, (2) achievement rating on standardized tests, (3) cumulative school records, including marks and (4) teacher judgment.
   b. If all pupils in a class take the course, advanced developmental materials should be provided.
4. What type of pupils shall be chosen?
   a. In general, pupils should be chosen who are lower in achievement than ability in a given subject.
   b. Usually junior-high-school pupils one year below their grade classification and senior-high-school pupils below ninth-grade achievement profit by remedial instruction.
   c. If remedial instruction fails, curricular adjustments should be made.
5. Shall attendance in the remedial class be voluntary or required?
   a. After it is decided a pupil should take a course, attendance should be required.
6. What shall be the method of instruction and the type of materials used?
   a. The only recommendation concerning method of instruction here made is that individualized work within the group seems best.
   b. Materials should be highly individualized, self-instructive, and flexible as possible.
7. What shall be the length of the period and the number of periods per week?
   a. If a separate class is organized, the length of the period should be the same as the length of the periods of other classes. Class should meet each day.

b. If the work is carried on within a content subject, most any satisfactory arrangement could be used. This method of organization is not advised.

8. How much time shall be devoted to the course?
   a. If a separate class is organized, it should be scheduled by the semester. The extent of pupil retardation within each subject should determine the length of time pupils are kept in the class. More than a total of one year's work in any remedial subject is not recommended.
9. Shall credit be given for the course?
   a. If a separate class is organized, credit should be given for that course.
   b. If remedial instruction is given in a content-subject class, credit for that subject should be given.

The answers which Thompson has given to these nine questions seem for the most part sound, and represent excellent educational practice. In question eight a statement is made, however, with which the writer is not in complete agreement. There it is stated that "More than a total of one year's work in any remedial subject is not recommended." The present writer feels that many pupils are so retarded in their reading abilities that it will take more than a year to bring them to the point where they can successfully carry the regular school subjects. Such individuals may need a carefully graduated series of remedial reading courses covering a span of as many as three or four years. Even then it is doubtful if some of the pupils would be able to succeed in the traditional high-school courses unless these were modified to meet the pupil on his own level. Too many schools offer special remedial classes in reading in the ninth grade, and then let the poor readers fend for themselves during the remaining years of high school. Much of the gain which is made during the first year of remedial instruction is lost when a pupil is put back into regular classes before he is ready. At the present time there appears to be a growing tendency for high schools to provide remedial reading instruction for those who need it which extends beyond the period of one year.

Summary

In this chapter detailed descriptions are given of remedial reading programs in senior high schools. The chief method used by larger high schools to care for their retarded readers is a remedial reading class or a special section of English. In smaller high schools the English teachers often have to deal with the reading problems of each pupil in the regular classes. The resourceful teacher can accomplish much by this method provided the classes are not too large or the spread of pupil abilities too great. A few schools employ reading specialists who make case studies of individual pupils or who coach small groups.

The plan to be followed by a given school should depend partly upon its size, the qualifications of the teaching staff, and the characteristics of the pupils. It is frequently desirable not to follow any one plan exclusively but to utilize several methods at one and the same time. For example, all teachers regardless of what subjects they teach should assist their poor readers in developing better reading techniques. English teachers in the regular classes should do all they can to bring about improvement in reading on the part of their pupils. Furthermore, special sessions of English or remedial reading classes should no doubt be organized when there are large numbers of individuals at hand who need the most basic training in reading and who have no chance of surviving in the regular classes. In addition to this provision, it would be desirable to have a reading specialist or thoroughly trained clinical psychologist available to diagnose and give help to the most obstinate and complicated cases.

Since each school faces situations which are unique in some respect, it is difficult to set up in advance and apart from the specific facts, a program which would be ideal. Nevertheless, there are some basic principles which have wide applicability and which should be incorporated in the typical program if it is to be successful. A few of them are summarized as follows:

1. Reading improvement classes should not be labeled "remedial" but should be given titles which will in no wise stigmatize pupils.

2. Remedial reading activities should be made a part of the regular school program rather than an appendage thereto. Scheduling remedial work before and after school hours or during activity periods is a very questionable practice.

3. The special assistance in reading given a pupil should be extended as long as he needs it and can profit from it. Hence provision for reading instruction should be made available at all grade levels of the high school.

4. If courses are offered in remedial reading or special English, regular credit should be given for the work done.

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Chapter 8

Reading Materials and Practice Exercises

There is only one way to learn to read and that is by reading. Much retardation in reading among pupils can be attributed to lack of practice in this fundamental skill. Of course a number of factors are operative in determining whether or not a pupil will read extensively. Home conditions, physical condition, interests, and materials available—are among these factors. In order to be a good reader one must continue to practice this art long after his grade-school days are over. Reading is not a skill which can be learned once for all and then used when occasion demands. Booker has well expressed this idea as follows:

> Reading is not a simple skill. It is a highly complex achievement, more nearly comparable to playing a musical instrument. In the beginning, in both cases, certain fundamental habits and technics must be learned. Then, in both cases, the learner may be able to interpret simple material with accuracy and appreciation but be quite unable still to interpret strange or more difficult material. Moreover, if the learner wishes to become something of an expert, in either case there are numerous refinements which can be acquired only thru competent instruction and long hours of purposeful practice.[1]

The expert musician requires a musical library consisting of sheet music and exercise books to keep his skill alive and promote its

[1] Ivan A. Booker, "Reading—Every Teacher's Job!" *Journal of the National Education Association*, Vol. 31, February, 1942, p. 45.

further refinement. Likewise the pupil who would excel in reading must have available for use an abundance of reading materials of many types—fiction, nonfiction, and study-type exercises.

For most poor readers to improve their performance, there are just two conditions which need to be obtained. They are as follows: (1) a desire to read, and (2) an opportunity to read abundant and suitable materials. The activity of reading can serve as a generator of an interest in reading. One is seldom interested in an activity he knows nothing about or has never performed.

The backbone of a good remedial or developmental reading program is a good reading library. It is the *sine qua non* of a successful program. A school which purports to be carrying on an adequate reading program should have available for pupil use thousands of books dealing with a tremendous range of subjects and of all levels of difficulty.

In this chapter, consideration is given to reading materials which are of particular value in promoting the reading growth of retarded readers. Many of the materials described can also be read with profit by good or even excellent readers. The good reader can, as a rule, improve his skill by using materials provided for poor readers, but the reverse statement is not necessarily true. In fact, the books and other reading matter regularly read by pupils at a given grade level may be totally unintelligible to some pupils in that grade. In recent years, publishers have recognized this problem and have provided simplified versions of many standard works and have prepared books for older children which carry a very limited vocabulary burden.

Reading Interests of Elementary-School Pupils

The vocabulary level of books used for remedial reading purposes is, of course, of great importance. Another factor that should not be overlooked is the appeal of the books for the children for whom they are intended. Children of any grade level differ with respect to the things which interest them. At the same time, there are some general trends in the reading interests of children at certain ages

which are important to keep in mind when books are selected. A very thorough study of what children in grades 4 to 8 like to read about has been made by Shores.[2] On the basis of the replies of 6,313 children from all sections of the United States, Shores draws the following conclusions:

1. When science topics are combined, science is among the top three categories of children's reading interests.
2. Children as a group choose mystery, adventure, children, horses, and dogs to read about.
3. As children progress through the grades from four to eight, interest increases in mystery stories and decreases in cowboy stories and fairy tales. As children reach the seventh and eighth grades they are increasingly interested in reading about teen-agers and children. Children in grades four through eight are interested in animals. As children move toward the upper elementary grades, interest in reading about various sports and recreational activities increases.
4. There is little difference in the reading interests of children from rural, urban, and metropolitan centers.
5. Contrary to the findings of other studies, few sharp sex differences are found. More than girls, boys want to read about topics characterized by the categories, Astronomy, Geology, and Physical Geography, Space Travel, Indians, Science, Planes, Jets and Rockets, Boats, Sports, and Baseball. More than boys, girls want to read about Animals, Horses, Dogs, Literature, Fairy Tales and Mythology, Mystery, Teen-Agers and Children, Famous People, Boy-Girl Relationships, and School. More of the girls' responses fall beyond the categories and find a place in the sub-category called Miscellaneous.

Teachers might well keep the findings of such studies as this in mind when selecting books for their elementary school pupils. Teachers and others who have worked with remedial cases over a period of years frequently keep records of what books are enjoyed and actually work in the remedial teaching situation. One such person is Dr. E. W. Dolch of the University of Illinois. In Table IX are presented lists of books which he has found to be of interest and of great value to children in the elementary school who have diffi-

[2] J. Harlan Shores, "Reading Interests and Informational Needs of Children in Grades Four to Eight," *Elementary English,* Vol. 31, December, 1954, pp. 493–500.

TABLE IX

Easy Reading Books for Older Children*

1. The Aviation Readers (first three books), Macmillan Company, New York
   Straight Up, Straight Down, Planes for Bob and Andy
2. The Core Vocabulary Readers, Macmillan Company, New York
   The Ranch Book, Rusty Wants a Dog, Smoky the Crow
3. The Unit Reading Series, Macmillan Company, New York
   Booklets to go along with readers for first three grades, many of them of older interest and without pictures of children.
4. The Fairy Tale Series, Chas. E. Merrill Company, Columbus, Ohio
   First Fairy Tales, Giants and Fairies, Magic Tales
5. The Pleasure Reading Series, Garrard Press, Champaign, Illinois
   Fairy Stories, Famous Stories, Bible Stories, and others
6. The Walt Disney Books, D. C. Heath and Company, Boston. An unmarked series of readers from Primer on, with the Disney animal characters
7. *Robinson Crusoe for Young Folks,* Beckley Cardy Company, Chicago, Illinois
8. Picture Scripts, E. M. Hale Company, Chicago, Illinois
   Booklets in Literature, Science, and Social Studies
9. Science Education Series, Row, Peterson and Company, Evanston, Illinois
   Four Primary Booklets, *Spring Is Here, Summer Is Here,* etc.
10. The beginning books of other science series such as by Scribner's, Ginn and Company, Singer Publishing Company
11. Childhood of Famous Americans Series, Bobbs-Merrill Company, Indianapolis, Ind.

Abe Lincoln	*Boy of Old Virginia*	*Alex Hamilton*
Robert Fulton & many others	*Mark Twain*	*Ben Franklin*

12. American Adventure Series: Wheeler Publishing Company, Chicago, Illinois

Davy Crockett	*Kit Carson*	*Buffalo Bill*
Daniel Boone	*Chief Black Hawk*	& others

13. Easy Reading Books by Scott, Foresman and Company, Chicago, Illinois

The Box Car Children	*Eight Treasured Stories*	*When Washington Danced*
Lorna Doone	*Six Great Stories*	*Moby Dick*
Tom Sawyer		

14. Real People Series, Row, Peterson and Company, Evanston, Illinois
    Booklets of 36 pages, each about some person prominent in American history
15. Meadowcroft History Stories, T. Y. Crowell and Company, New York
    On Indian Trails, The First Year, Shipboy with Columbus
16. The Real Book Series, Garden City Books, Garden City, New York
    Animals, sports, pets, inventions, hobbies, etc.
17. The "Initial Biography" Series, Chas. Scribner's Sons, New York
    Washington, Lincoln, Jackson, and others

* E. W. Dolch, Unpublished material, College of Education, University of Illinois, Urbana, Illinois, 1955.

PLATE 9. The Free Reading Period Stimulates Interest in Reading for Enjoyment

PLATE 10. The Classroom Library Is an Indispensible Feature of a Well-Balanced Remedial Reading Program

culties in reading. It might be said here that many of the books included in Table IX can also be used to good advantage with seriously retarded readers in the junior and senior high school provided such pupils have a real interest in the subject matter of the book selected. The materials cited in Table IX, if purchased by a school, would certainly provide a fine beginning for a remedial reading library.

Reading Interests of Junior-High-School Pupils

A very interesting and valuable study of the reading interests of pupils of junior-high-school age was made by Malchow.[3] She submitted a list of 90 titles to 1387 junior-high-school boys and girls in Wisconsin. This list was made up of books which had been the favorites of such pupils and which had been recommended by several authorities on children's reading. Each pupil in the study was asked to check all the books on the list he had read and to answer the following questions for each book he liked especially well:

1. Why do you like the book?
2. What character do you like best? What do you like about him or her?
3. Which part interests you most?

The data which were gathered indicated that junior-high-school boys are interested chiefly in:

1. Stories of animals (e.g., *Call of the Wild; Smoky, the Cow-horse*)
2. Adventure Stories (e.g., *Adventures of Tom Sawyer, Adventures of Huckleberry Finn, Texan Scouts, Kidnapped, Lone Star Ranger*)
3. Stories of boys and girls who play pranks and who frequently get into mischief and trouble (e.g., *Penrod, Hoosier School-Boy, Bobbsey Twins*)
4. Stories dealing with different countries, people, and customs (e.g., *Hans Brinker, Tarzan of the Apes, Lance of Kanana*)
5. Books dealing with war and fighting (e.g., *Treasure Island, With the Indians in the Rockies, Riders of the Purple Sage*)
6. Books which characterize the hero as a "real boy" and not a sissy, books with much action, humorous books, and books dealing with

[3] Evangeline C. Malchow, "Reading Interests of Junior High School Pupils," *School Review*, Vol. 45, March, 1937, pp. 175–185.

sports, pirates, treasures, success versus odds, danger, mystery, the West.

The study showed that girls like many of the books especially written for boys, but boys do not enjoy books that are written for girls. The three types of books most enjoyed by girls are:

1. Mystery stories (e.g., *Boarded Up House, Secret Garden, Adventures of Sherlock Holmes*)
2. Accounts of home life and family relationships (e.g., *Little Women, Mrs. Wiggs of the Cabbage Patch*)
3. Stories of everyday life or affairs that are true to life.

The author of this investigation has listed the following tendencies which are most significant to anyone who desires to help junior-high-school pupils with their selection of books:

1. Both boys and girls are much more concerned with the content than with the style or form of the books they read.
2. Love of adventure is the greatest single factor in creating interest for boys in a story. It is also a most significant factor for girls.
3. Love of mystery is a strong factor in the reading interests of girls but not of boys.
4. Love of animals is a significant influence on the reading of junior-high-school boys. It does not rate so high for girls.
5. Idealism is an implied influence in such interests as hero-worship and home life.
6. True-to-life stories and stories of home life have great appeal for girls but no special appeal for boys.
7. There is a tendency for both boys and girls to be interested in stories of new countries, people, and customs.
8. There seems to be a tendency for pupils of higher levels of intelligence to be conscious of the element of humor in books.
9. In general, boys with low intelligence ratings have a slight preference for sports, mischief, fighting, and much action.
10. A great proportion of girls with intelligence quotients below 90 prefer stories because they are real or true to life.

Another study of the factors in reading materials which interest junior-high-school pupils was made by Zeller.[4] Forty-eight books

[4] Dale Zeller, *The Relative Importance of Factors of Interest in Reading Materials for Junior High School Pupils*, New York Bureau of Publications, Teachers College, Columbia University, 1941.

frequently read by junior-high-school pupils were listed on a questionnaire and submitted to approximately 4,000 individuals in grades 7, 8, and 9. They were asked to check all the books on the list they had read and also to mark in order of preference the four books they liked most and in order of disapproval the books they liked least. Using these data a composite interest rating for each book was worked out. The books on the list were also rated by eight competent judges as to the extent that 18 different interest factors were present in them. Correlations were then worked out between the appeal of each of the 48 books and the estimated amounts of certain interest factors contained in them. It was found that for boys the chief factors that make a book interesting are: adventure, action, combat, humor, rivalry, and appeal to the senses. For girls the factors are: humor, people, familiar experience, and situations in which they can imagine themslves.[5]

Of the 48 books submitted to the pupils, the 25 most popular are listed on the next page.[6]

It should be remembered that both of the studies which have been referred to, have investigated the reading interests of normal junior-high-school pupils. It is possible that some of the retarded readers at this level may have less mature interests than those of the pupils studied, and it is certain that their reading proficiency is less. Therefore it is advisable when working with the most retarded cases to have available a list of books which can be read and enjoyed by individuals with the most limited reading skills.

Lutz[7] has developed a list of about 325 books which are recommended for severely retarded readers in the junior high school. This list is divided into the following sections: general fiction, fiction—animals, books that make you laugh, science and social studies,

[5] *Ibid.*, p. 53.
[6] *Ibid.*, pp. 83–84.
[7] Una Dell Lutz, "Books for Severely Retarded Junior High School Readers," *English Journal*, Vol. 39, October, 1950, pp. 439–447.

Boys		Girls	
BOOK	FREQUENCY	BOOK	FREQUENCY
1. *Smoky*	305	1. *Anne of Green Gables*	273
2. *White Fang*	190	2. *A Girl of the Limberlost*	243
3. *Riders of the Purple Sage*	145	3. *Daddy-Long-Legs*	220
4. *Black Beauty*	112	4. *Rebecca of Sunnybrook Farm*	218
5. *Lad, a Dog*	104	5. *Freckles*	193
6. *Kazan*	97	6. *Old-Fashioned Girl*	192
7. *Robinson Crusoe*	72	7. *Mrs. Wiggs of the Cabbage Patch*	182
8. *The Virginian*	68	8. *Seventeen*	148
9. *Freckles*	66	9. *Understood Betsy*	143
10. *Baree, Son of Kazan*	61	10. *Eight Cousins*	119
11. *Arnold Adair, American Ace*	58	11. *The Circular Staircase*	117
12. *Tawny*	56	12. *Just Patty*	115
13. *Skipper*	55	13. *Pollyanna*	114
14. *Penrod*	55	14. *When Patty Went to College*	108
15. *Wings*	53	15. *Black Beauty*	95
16. *Big Enough*	52	16. *The Boarded-up House*	84
17. *The Rainbow Trail*	52	17. *Smoky*	83
18. *A White Indian Boy*	48	18. *Under the Lilacs*	80
19. *Swiss Family Robinson*	47	19. *Just David*	79
20. *Wildfire*	46	20. *Nobody's Girl*	78
21. *Uncle Tom's Cabin*	46	21. *Lad, a Dog*	76
22. *Arnold Adair with the English Aces*	45	22. *The Sapphire Signet*	75
23. *Kidnapped*	44	23. *Uncle Tom's Cabin*	72
24. *Black Storm*	42	24. *Dandelion Cottage*	70
25. *The Covered Wagon*	41	25. *Magic Garden*	69
26. *Wolf, the Storm Leader*	41		

airplanes, poetry, picture books, and army materials. Space will not permit the inclusion of this entire list here. However, in Table X is presented the section on general fiction which contains 111 titles. Each entry also carries the reading difficulty of the book and its publisher.

TABLE X

Easy Books for Severely Retarded Readers of Junior-High-School Age
(*General Fiction*)

AUTHOR	TITLE	GRADE LEVEL	PUBLISHER
Adams	Vaino	3.1	Dutton
Alcott	Little Men	3.4	Little, Brown
Andrews	Ten Boys Who Lived on the Road from Long Ago to Now	3	Ginn
Baldwin	Old Greek Stories	3	American Book
Baldwin	Robinson Crusoe for Children	3	American Book
Baldwin	Stories of Don Quixote	3.9	American Book
Beatty	On Our Farm	2.6	Saalfield
Bianco	The Good Friends	3	Viking
Brann	Patrick Was His Name	3	Macmillan
Burton	The Little House	2	Houghton Mifflin
Cannon	Pueblo Boy	2.9	Houghton Mifflin
Caudill	Happy Little Family	2–3	Winston
Cobb	Pennie	3	Arlo
Cohn	Little People in a Big Country	3	Oxford
Credle	Down Down the Mountain	2–3	Nelson
Dagleish	Choosing Books	3.7	Macmillan
Dearborn	City Friends	2	Macmillan
Dennis	Holiday	3	Viking
Eldridge	Ling, Grandson of Yen Foh	3	Whitman
Eliot	Pablo's Pipe	3	Dutton
Emerson	School Days in Disneyville	3	Heath
Everson	Secret Cave	3	Dutton
Finger	Tales from Silver Lands	3	Doubleday
Flack	Story about Ping	3	Viking
Gag	Gone Is Gone	2	Coward-McCann
Gale	Katrina Van Ost and the Silver Rose	3.8	Putnam
Gall	Flattail	3	Oxford
Gall	Ringtail	3	Oxford
Gates, A. I.	Down Our Street	2	Macmillan
Gates, A. I.	River Ranch	3	Viking
Gay	Sakimura	2	Viking
Geisel	And To Think I Saw It on Mulberry Street	3	Vanguard
Geisel	Horton Hatches the Egg	3	Rand McNally
Gray	Rolling Wheels	3	Little, Brown
Hader	Farmer in the Dell	2	Macmillan

TABLE X (*Continued*)

AUTHOR	TITLE	GRADE LEVEL	PUBLISHER
Hader	Little Town	3	Macmillan
Hader	The Little Stone House	2	Macmillan
Hall	Days before History	3	Crowell
Hanna	Someday Soon	3–4	Scott, Foresman
Harshaw	Reindeer of the Waves	3.0	Rand McNally
Haywood	Penny and Peter	3	Harcourt, Brace
Heffernan	All Aboard for Storyland	3	California State
Hill	Along Comes Judy	3	Lippincott
Huber	After the Sun Sets	2	Row, Peterson
Huber	It Happened One Day	1	Row, Peterson
Hunt	Little Girl with Seven Names	3	Stokes
Johnson, M.	Black Bruce	3	Harcourt, Brace
Johnson, S.	Cathy	3	Longmans, Green
Jones	Bible Story Reader	2	Johnson Pub. Co.
Kelsey	Maria Rosa	3	Doubleday
Kinert	Little Helicopter	1–2	Macmillan
Lattimore	Little Pear	3	Harcourt, Brace
Lawson	Dragon John	3	Viking
Leaf	Story of Ferdinand	2–3	Viking
Linderman	Indian Lodge Fire Stories	3	Scribner's
Lofting	Story of Dr. Doolittle	3.1	Stokes
Lofting	Story of Mr. Tubbs	3	Stokes
Lowensburg	Lighting the Torch	3.1	Longmans, Green
McCloskey	Lentil	3	Viking
Marcy	Indians' Garden	3	Wagner
Mason	Happy Jack	3	Macmillan
Mason	Little Jonathan	1–2	Macmillan
Mason	Middle Sister	3	Macmillan
Mason	Smiling Hill Farm	3	Ginn
Mason	Susannah the Pioneer Cow	2	Macmillan
Mason	Timothy Has Ideas	3	Macmillan
Meader	Red Horse Hill	3.2	Harcourt, Brace
Meigs	Willow Whistle	3	Macmillan
Mertz	Forty Famous Stories	3	Hall & McCreary
Moderow	Six Great Stories	3	Scott, Foresman
Moon	Chi Wee	3.3	Doubleday
Moon	Tita of Mexico	3	Stokes
Morcomb	Red Feather	2–3	Lyons & Carnahan
Nida	The Tree Boys	3	Row, Peterson
O'Donnell	If I were Going	2.6	Row, Peterson
Orton	Little Lost Pigs	3–4	Stokes
Orton	Treasures in a Trunk	3	Stokes
Pease	It Seems Like Magic	3	Stokes
Petersham	An American ABC	3	Macmillan

TABLE X (*Continued*)

AUTHOR	TITLE	GRADE LEVEL	PUBLISHER
Pitkin	Maple Sugar Time	1–2	S. Daye Co.
Politi	Juanita	1–2	Scribner's
Politi	Pedro the Angel of Olvera Street	3	Scribner's
Porazenski	My Village	3	Roy Pub.
Robinson	Buttons	2–3	Viking
Ross	Hungry Moon	2–3	Viking
Schreiber	Bambino the Clown	1–2	Viking
Seignobose	Thank You Book	1–2	Scribner's
Shackleford	My Happy Days	3	Assoc. Pub.
Shannon	Dobry	3	Viking
Snedden	Docas the Indian Boy	2.3	Heath
Snedden	Leif and Thorkel	3	World Book
Snedeker	Theras and His Town	3	Doubleday
Spyri	Moni the Goat Boy	3.0	Ginn
Stevenson	Abe Lincoln Frontier Boy	3	Bobbs-Merrill
Thorndike	The Thorndike Library (all adapted with limited vocabulary):		
	Anderson's Fairy Tales	3	Appleton-Century-Crofts
	Black Beauty	3	Appleton-Century-Crofts
	Heidi	3	Appleton-Century-Crofts
	Little Lame Prince	3	Appleton-Century-Crofts
	Pinocchio	3	Appleton-Century-Crofts
	Water Babies	3	Appleton-Century-Crofts
	Wonder Book	3	Appleton-Century-Crofts
Tobias	Bremen Band	3.5	Macmillan
Vance	While Shepherds Watched	3	Dutton
Warner	Boxcar Children	3	Scott, Foresman
West	Cloister and the Hearth	3	Longmans, Green
West	Fables and Fairy Tales	2	Longmans, Green
West	Seven Famous Tales	3–4	Longmans, Green
White	Little Giant Mother Goose	2.5	Whitman
Williamson	Lion Cub	2	Doubleday
Wolo	Secret of the Ancient Oak	3–4	Longmans, Green
Wooley	Two Hundred Pennies	3	Morrow

The One Hundred Books Most Enjoyed by Retarded Readers in Senior High Schools

In Table XI is presented a list of 100 books which senior-high-school teachers throughout the United States have found to be most

TABLE XI

The One Hundred Books Most Enjoyed by Retarded Readers in Senior High Schools

	AUTHOR	TITLE	PUBLISHER	NO. OF SCHOOLS REPORTING
1.	Alcott, Louisa M.	*Little Women*	Grosset & Dunlap	26
2.	Alcott, Louisa M.	*Little Men*	Grosset & Dunlap	16
3.	Alcott, Louisa M.	*Old Fashioned Girl*	Grosset & Dunlap	12
4.	Alcott, Louisa M.	*Eight Cousins*	Grosset & Dunlap	11
5.	Aldrich, Bess S.	*A Lantern in Her Hand*	D. Appleton-Century	7
6.	Altsheler, Joseph A.	*Horsemen of the Plains*	Grosset & Dunlap	7
7.	Black, Kathleen	*Manners for Moderns*	Allyn & Bacon	8
8.	Blackmore, Richard D. (adapted by Jordan, Berglund, Washburne)	*Lorna Doone*	Scott, Foresman	18
9.	Bok, Edward	*A Dutch Boy Fifty Years After*	Scribner	7
10.	Boylston, Helen D.	*Sue Barton, Student Nurse*	Little, Brown	10
11.	Brink, Carol	*Caddie Woodlawn*	Macmillan	14
12.	Buck, Frank	*On Jungle Trails*	Stokes	11
13.	Buck, Frank and Anthony, Edward	*Bring 'Em Back Alive*	Garden City	8
14.	Buckingham, B. R. (ed.)	*Too Many Bears*	Ginn	12
15.	Buckingham, B. R. (ed.)	*The Attack*	Ginn	10
16.	Bugbee, Emma	*Peggy Covers the News*	Dodd, Mead	10
17.	Burnett, Frances H.	*Secret Garden*	Grosset & Dunlap	7
18.	Cohen, Joheph G. and Scarlet, Will	*Modern Pioneers*	Allyn & Bacon	8
19.	Compton, Ray; Brown, M. D.; and Brown, W. B. (eds.)	*The Open Road*	Harcourt, Brace	13
20.	Defoe, Daniel	*Robinson Crusoe*	D. Appleton-Century	15
21.	Dodge, Mary M.	*Hans Brinker*	D. Appleton-Century	9
22.	Doyle, Arthur Conan	*Adventures of Sherlock Holmes*	Harper	12
23.	Dumas, Alexander	*The Count of Monte Cristo*	Longmans, Green	11

24. Ferber, Edna	*Cimarron*	Doubleday, Doran	7
25. Fisher, Dorothy Canfield	*Understood Betsy*	Grosset & Dunlap	12
26. Gollomb, Joseph	*That Year at Lincoln High*	Macmillan	7
27. Grey, Zane	*The Short-Stop*	Grosset & Dunlap	7
28. Haggard, Henry Rider (edited by West)	*King Solomon's Mines*	Longmans, Green	11
29. Halliburton, Richard	*Royal Road to Romance*	Garden City	7
30. Haskell, Helen	*Katrinka*	Dutton	7
31. Herzberg; Paine; Works	*Quest*	Houghton Mifflin	10
32. Herzberg; Paine; Works	*Rewards*	Houghton Mifflin	9
33. Herzberg; Paine; Works	*Ventures*	Houghton Mifflin	8
34. Hill, Joe, Jr.; and Hill, O. D.	*In Little America with Byrd*	Ginn	7
35. Hough, Emerson	*The Covered Wagon*	Grosset & Dunlap	18
36. Jackson, Helen Hunt	*Ramona*	Little, Brown	7
37. James, Will	*Smoky*	Scribner	21
38. James, Will	*Young Cowboy*	Scribner	8
39. James, Will	*Lone Cowboy*	Scribner	7
40. James, Will	*Sun Up*	Scribner	7
41. Kaler, James Otis	*Toby Tyler*	Grosset & Dunlap	9
42. Kipling, Rudyard	*Captains Courageous*	Doubleday, Doran	17
43. Kipling, Rudyard	*Jungle Book*	Doubleday, Doran	8
44. Lane, Rose W.	*Let the Hurricane Roar*	Longmans, Green	7
45. Lewis, Elizabeth F.	*Young Fu of the Upper Yangtze*	Winston	7
46. Lindbergh, Charles A.	*We*	Putnam	10
47. Lindbergh, Anne M.	*North to the Orient*	Boni & Liveright	9
48. Lofting, Hugh	*Story of Doctor Doolittle*	Stokes	8
49. London, Jack	*Call of the Wild*	Grosset & Dunlap	28
50. London, Jack	*White Fang*	Grosset & Dunlap	16
51. London, Jack	*The Sea Wolf*	Macmillan	7
52. Malot, Hector	*Nobody's Boy*	Cupples & Leon	8
53. Malot, Hector	*Nobody's Girl*	Cupples & Leon	7
54. McClay, Harriet L., and Judson H. (eds.)	*Story Biographies*	Holt	12
55. Meader, Stephen W.	*T-Model Tommy*	Harcourt, Brace	8
56. Meigs, Cornelia	*Invincible Louisa*	Little, Brown	8

TABLE XI (*Continued*)

	AUTHOR	TITLE	PUBLISHER	NO. OF SCHOOLS REPORTING
57.	Melville, Herman	*Moby Dick* (Simplified)	Scribner	7
58.	Miller, H. A., and Leary, Bernice (eds.)	*New Horizons*	Harcourt, Brace	32
59.	Mirrielees, Edith R. (ed.)	*Twenty-two Short Stories of America*	Heath	9
60.	Moderow, G.; Sandrus, M. Y.; et al. (eds.)	*Six Great Stories*	Scott, Foresman	24
61.	Montgomery, Lucy M.	*Anne of Green Gables*	Page	13
62.	Mullen, Sarah, and Lanz, M. S. (eds.)	*Playing the Game*	D. Appleton-Century	13
63.	O'Brien, John S.	*Silver Chief*	Winston	11
64.	O'Brien, John S.	*Valiant, Dog of the Timberline*	Winston	11
65.	Pease, Howard	*Jinx Ship*	Garden City	10
66.	Pease, Howard	*Secret Cargo*	Doubleday, Doran	9
67.	Pease, Howard	*Ship without a Crew*	Doubleday, Doran	9
68.	Pease, Howard	*Wind in the Rigging*	Doubleday, Doran	7
69.	Persing, Chester L., and Leary, B. (eds.)	*Adventure Bound*	Harcourt, Brace	43
70.	Persing, Chester L., and Leary, B. (eds.)	*Champions*	Harcourt, Brace	27
71.	Persky, Louis J.	*Adventures in Sport*	Ginn	21
72.	Porter, Gene Stratton	*Girl of the Limberlost*	Doubleday, Doran	7
73.	Pyle, Howard	*Men of Iron*	Harper	12
74.	Pyle, Howard	*Some Merry Adventures of Robin Hood*	Scribner	9
75.	Rice, Alice	*Mrs. Wiggs of the Cabbage Patch*	D. Appleton-Century	14
76.	Richman, Frances B.	*Reading Is Fun*	L. W. Singer Co.	8
77.	Sabatini, Rafael	*Captain Blood*	Grosset & Dunlap	10
78.	Salton, Felix	*Bambi*	Grosset & Dunlap	11
79.	Sewell, Anna	*Black Beauty*	D.Appleton-Century	14
80.	Singmaster, Elsie	*You Make Your Own Luck*	Longmans, Green	7

81. Spyri, Johanna	*Heidi*	D. Appleton-Century	18
82. Stevenson, Robert L.	*Treasure Island*	Longmans, Green	21
83. Stevenson, Robert L.	*Kidnapped*	Grosset & Dunlap	11
84. Stratton, Clarence (adapted by Moderow	*When Washington Danced*	Scott, Foresman	7
85. Tarkington, Booth	*Seventeen*	Grosset & Dunlap	20
86. Tarkington, Booth	*Penrod*	Grosset & Dunlap	12
87. Tarkington, Booth	*Alice Adams*	Grosset & Dunlap	8
88. Tarkington, Booth	*Penrod and Sam*	Grosset & Dunlap	7
89. Terhune, Albert P.	*Lad, a Dog*	Grosset & Dunlap	17
90. Theisen, W. W., and Leonard, S. A. (eds.)	*Real Adventures*	Macmillan	16
91. Theisen, W. W., and Leonard, S. A. (eds.)	*Tales of Courage*	Macmillan	11
92. Twain, Mark	*Adventures of Tom Sawyer*	Harper	25
93. Twain, Mark	*Adventures of Huckleberry Finn*	Grosset & Dunlap	19
94. Twain, Mark	*The Prince and the Pauper*	Grosset & Dunlap	12
95. Webster, Jean	*Daddy-Long-Legs*	D. Appleton-Century	22
96. White, Stewart E.	*Daniel Boone, Wilderness Scout*	Doubleday, Doran	8
97. Wiggin, Kate Douglas	*Rebecca of Sunnybrook Farm*	Grosset & Dunlap	14
98. Williams, Blanche C.	*New Narratives*	D. Appleton-Century	23
99. Williams, Blanche C.	*Mystery and the Detective*	D. Appleton-Century	10
100. Wister, Owen	*The Virginian*	Grosset & Dunlap	15

enjoyed by their retarded readers.[8] This list was secured by sending letters to all high schools in the United States located in towns of 20,000 population or more. The question asked of each high-school principal was—"What books have your teachers found that are enjoyed by your retarded readers?" Two-hundred-seventeen schools answered this question, listing the books by name and giving the author and publisher of each. These 217 schools are located in 35 states and the District of Columbia. A total of 2,424 different titles of books were mentioned by the teachers. From this large number the 100 most frequently mentioned were selected. It can be noted that no book is accorded a place on the list which was not recommended by at least seven different teachers.

Without doubt every secondary school should have these hundred books on the shelves of the room used for remedial reading. In addition, hundreds of volumes of similar materials should be provided.

Table XI includes the names of publishers from whom the books may be purchased. Some of the books can be secured from more than one publisher. Certain of the titles represent simplified versions of well-known classics. Among such are Daniel Defoe's *Robinson Crusoe,* Blackmore's *Lorna Doone,* Dodge's *Hans Brinker,* Sewell's *Black Beauty,* Spyri's *Heidi,* Dumas' *The Count of Monte Cristo,* Stevenson's *Treasure Island,* and Haggard's *King Solomon's Mines.* Two leading series of simplified works for retarded readers are "The Thorndike Library" (New York: D. Appleton-Century Company) and "Simplified and Abridged Classics," edited by M. West (New York: Longmans, Green and Company).

What is there about these hundred books which appeals so much to retarded readers of high-school age? In the first place the vocabulary employed in most of them is relatively simple, and in the second place the content of the stories undoubtedly strikes a resonant chord so far as these young adolescents are concerned. An analysis of the books shows that a variety of topics are covered. Seventy-nine

[8] Glenn Myers Blair, "The One Hundred Books Most Enjoyed By Retarded Readers in Senior High Schools," *The English Journal,* Vol 30, January, 1941, pp. 42–47.

TABLE XII

Two Hundred Fifty Books Popular with Slow Learners
(*From McAdow*)

Abbot, Jane	*Fiddler's Coin*
Adams, Andy	*Log of a Cowboy*
Alcott, Louisa M.	*Little Women*
Alcott, Louisa M.	*Little Men*
Alcott, Louisa M.	*Eight Cousins*
Aldrich, Bess S.	*A Lantern in Her Hand*
Aldrich, Bess S.	*Miss Bishop*
Aldrich, Bess S.	*The Rim of the Prairie*
Aldrich, Bess S.	*A White Bird Flying*
Allen and Lyman	*Wonder Book of the Air*
Altsheler, Joseph A.	*Horsemen of the Plains*
Altsheler, Joseph A.	*The Last of the Chiefs*
Altsheler, Joseph A.	*The Sword of Antietam*
American Boy	*American Boy Sea Stories*
American Boy	*American Boy Sports Stories*
Andrews, Mary R.	*Her Country*
Anonymous	*The Log Cabin Lady*
Armer, Laura Adams	*Waterless Mountain*
Atkinson, Eleanor	*Greyfriars Bobby*
Austin, Jane Goodwin	*Standish of Standish*
Austin, Jane Goodwin	*Betty Alden*
Bacheller, Irving	*A Man for the Ages*
Bain and Miller	*Bob Wakefield, Naval Aviator*
Baldwin, Arthur	*Sou'wester Goes North*
Barbour, Ralph Henry	*The Halfback*
Barbour, Ralph Henry	*For the Honor of the School*
Bass, Florence	*Stories of Pioneer Life*
Bell, Archie	*King Tut-Ankh-Amen*
Bennett, John	*Barnaby Lee*
Bennett, John	*Master Skylark*
Best, Herbert	*Garram the Chief*
Best, Herbert	*Garram the Hunter*
Bianco, Margery	*Winterbound*
Blackmore, Richard D.	*Lorna Doone**
Boff, Charles	*Boys' Book of Flying*
Bok, Edward	*A Dutch Boy Fifty Years After*
Booth, Harold H.	*Book of Modern Airplanes*
Boylston, Helen D.	*Sue Barton, Student Nurse*
Brier, Howard M.	*Skycruiser*
Brier, Howard M.	*Waterfront Beat*
Brush, Christine C.	*The Colonel's Opera Cloak*
Buck, Frank	*Bring 'Em Back Alive*
Bugbee, Emma	*Peggy Covers the News*
Bugbee, Emma	*Peggy Covers Washington*
Burnett, Frances H.	*Secret Garden*
Burns, Walter Noble	*The Saga of Billy the Kid*
Burtis, Thomson	*Haunted Airways*
Bush, Bertha E.	*A Prairie Rose*
Cannon, Cornelia James	*Lazaro in the Pueblos*
Carnegie, Dale	*Five Minute Biographies*
Cather, Willa	*The Song of the Lark*
Cather, Willa	*My Antonia*

* Adapted by Jordan, Bergland, and Washburne.

Choate and Curtis	*Absolute Pitch*
Cody, William F.	*The Adventures of Buffalo Bill*
Cohen and Scarlet	*Modern Pioneers*
Craddock, Charles Egbert	*In the Tennessee Mountains*
Craig, John D.	*Danger Is My Business*
Crew, Helen Coale	*Laughing Lad*
Curwood, James Oliver	*Baree, Son of Kazan*
Curwood, James Oliver	*The Country Beyond*
Curwood, James Oliver	*The Flaming Forest*
Curwood, James Oliver	*The Plains of Abraham*
Custer, Elizabeth B.	*Boots and Saddles*
Davis, Richard Harding	*Ransom's Folly*
Davis, Richard Harding	*Soldiers of Fortune*
Davis, Richard Harding	*Stories for Boys*
Dean, Graham M.	*Bob Gordon, Cub Reporter*
Defoe, Daniel	*Robinson Crusoe*
Deming, Dorothy	*Penny Marsh, Public Health Nurse*
Dillon, Mary	*The Rose of Old St. Louis*
Dix, Beulah Marie	*Blithe McBride*
Dix, Beulah Marie	*Merrylips*
Dumas, Alexander	*The Three Musketeers*
Dwight, Allan	*Drums in the Forest*
Eadie, Tom	*I Like Diving*
Eastman, Charles A.	*Indian Boyhood*
Ellsberg, Edward	*On the Bottom*
Erskine, Laurie York	*Comrades of the Clouds*
Fargo, Lucille F.	*Marian-Martha*
Faunce, Hilda	*Desert Wife*
Ferber, Edna	*American Beauty*
Ferber, Edna	*Show Boat*
Ferris, Helen	*Adventure Waits*
Ferris, Helen	*Challenge*
Ferris, Helen	*This Happened to Me*
Finger, Charles J.	*A Dog at His Heel*
Fisher, Dorothy Canfield	*Understood Betsy*
Fleming, Waldo	*The Lost Caravan*
Fleming, Waldo	*The Pygmy's Arrow*
Fox, John, Jr.	*The Trail of the Lonesome Pine*
Fraser, Chelsea	*Heroes of the Sea*
Freeman, Mary E.	*The Shoulders of Atlas*
French, Joseph Lewis	*Aces of the Air*
Gaither, Frances	*The Painted Arrow*
Gale, Elizabeth	*Katrina Van Ost and the Silver Rose*
Garland, Hamlin	*The Captain of the Gray Horse Troop*
Garland, Hamlin	*Main Travelled Roads*
Gollomb, Joseph	*That Year at Lincoln High*
Gollomb, Joseph	*Tuning In at Lincoln High*
Greene, Homer	*A Lincoln Conscript*
Grey, Katharine	*Rolling Wheels*
Grey, Zane	*Roping Lions in the Grand Canyon*
Haggard, S. Rider	*King Solomon's Mines*
Halliburton, Richard	*Royal Road to Romance*
Hauck, Louise Platt	*The Youngest Rider*
Hawes, Charles Boardman	*The Dark Frigate*
Hess, Fjeril	*Saddle and Bridle*
Hewes, Agnes Wentworth	*Glory of the Seas*

Heygler, William	*Steve Merril, Engineer*
Hough, Emerson	*The Covered Wagon*
Hough, Emerson	*North of '36?*
Hough, Emerson	*54–40 or Fight*
Hueston, Ethel	*Prudence Says So*
Hueston, Ethel	*Prudence of the Parsonage*
Isely, Elise DuBach	*Sunbonnet Days*
Jackson, Helen Hunt	*Ramona*
James, Will	*Smokey*
James, Will	*Sand*
James, Will	*Sun Up*
James, Will	*Young Cowboy*
James and James	*The Courageous Heart*
Janvier, Thomas A.	*The Aztec Treasure House*
Jones, Idwal	*Whistler's Van*
Kantor, Mackinlay	*The Voice of Bugle Ann*
Kingsley, Charles	*Westward Ho!*
Knight, Ruth Adams	*A Friend in the Dark*
Knox, Rose B.	*Gray Caps*
Lane, Rose Wilder	*Let the Hurricane Roar*
Lincoln, Joseph C.	*Cap'n Dan's Daughter*
Lincoln, Joseph C.	*Cy Whittaker's Place*
Lincoln, Joseph C.	*Shavings*
Lindbergh, Charles A.	*"We"*
London, Jack	*Call of the Wild*
London, Jack	*White Fang*
Lull, Margaret Young	*Face West*
Lynn, Margaret	*A Stepdaughter of the Prairie*
Lynn, Margaret	*The Land of Promise*
McCall, Sidney	*Truth Dexter*
McCarter, Margaret Hill	*The Price of the Prairie*
McNeely, Marian Hurd	*Jumping-Off Place*
Malkus, Alida Sims	*Caravans*
Mallette, Gertrude E.	*For Keeps*
Marryat, Captain	*Emmy Lou*
Martin, George Madden	*Masterman Ready*
Masefield, John	*Jim Davis*
Masefield, John	*Lost Endeavor*
Masefield, John	*Martin Hyde*
Meader, Stephen	*Longshanks*
Meader, Stephen	*The Lumberjack*
Meader, Stephen	*Red Horse Hill*
Means, Florence Crannell	*Tangled Waters*
Meese, Mildred Foulke	*The Wagon to the Star*
Meigs, Cornelia	*The Covered Bridge*
Meigs, Cornelia	*Clearing Weather*
Meigs, Cornelia	*Swift Rivers*
Meigs, Cornelia	*The Trade Wind*
Merrill and Daws	*How to Be an Aviator*
Mikels, Rosa M. R.	*Short Stories for High Schools*
Mitchell, J. D.	*Amos Judd*
Moderow, Sandrus, Mitchell, Noyes (eds.)	*Six Great Stories*
Morrow, Honore Wilsie	*Beyond the Blue Sierra*
Morrow, Honore Wilsie	*Forever Free*
Morrow, Honore Wilsie	*Let the King Beware*
Muir, John	*Stickeen*
Nason, Leonard H.	*Sergeant Eadie*
Nichols, Walter H.	*Cowboy Hugh*
Ostenso, Martha	*Wild Geese*
Pease, Howard	*Fog Horns*
Pease, Howard	*Highroad to Adventure*
Pease, Howard	*Hurricane Weather*
Porter, Eleanor H.	*Just David*
Porter, Gene Stratton	*Freckles*
Porter, Gene Stratton	*A Girl of the Limberlost*

Porter, Gene Stratton	*Michael O'Halloran*
Pyle, Howard	*Story of King Arthur and His Knights*
Pyle, Howard	*Men of Iron*
Raine, William Macleod	*Colorado*
Raine, William Macleod	*Man Size*
Raine, William Macleod	*Roads of Doubt*
Raine, William Macleod	*Wyoming*
Rawlings, Marjorie Kinnan	*The Yearling*
Raymond, Margaret T.	*A Bend in the Road*
Raymond, Margaret T.	*Linnet on the Threshold*
Reynolds, J. M.	*Bugles at Midnight*
Rice, Alice Hegan	*Mrs. Wiggs of the Cabbage Patch*
Rice, Alice Hegan	*Lovey Mary*
Richmond, Grace S.	*Foursquare*
Rinehart, Mary Roberts	*Tish*
Rinehart, Mary Roberts	*More Tish*
Rinehart, Mary Roberts	*When A Man Marries*
Rinehart, Mary Roberts	*The Circular Staircase*
Rolt-Wheeler, Francis	*The Boy with the U.S. Foresters*
Salten, Felix	*Bambi*
Schmidt, Sarah Lindsay	*New Land*
Schmidt, Sarah Lindsay	*Ranching on Eagle Eye*
Scott, L. B. Dawn	*Boy of the Pueblos*
Seton, Ernest Thompson	*Trails of the Sand Hill Stag*
Sewell, Anna	*Black Beauty*
Singmaster, Elsie	*A Boy at Gettysburg*
Singmaster, Elsie	*You Make Your Own Luck*
Singmaster, Elsie	*Swords of Steel*
Skidmore, Hubert	*River Rising*
Skinner, Constance Lindsay	*Red Man's Luck*
Snedeker, Caroline Dale	*The Beckoning Road*
Snedeker, Caroline Dale	*The Spartan*
Sprague, William C.	*The Boy Pathfinder*
Stowe, Harriet Beecher	*Uncle Tom's Cabin*
Sublette, C. M.	*The Scarlet Cockerel*
Swift, H. H.	*Railroad to Freedom*
Tarkingtoon, Booth	*Penrod*
Tarkingtoon, Booth	*Penrod and Sam*
Tarkingtoon, Booth	*Seventeen*
Tarkingtoon, Booth	*A Gentleman from Indiana*
Terhune, Albert Payson	*Bruce*
Terhune, Albert Payson	*My Friend the Dog*
Terhune, Albert Payson	*The Heart of a Dog*
Terhune, Albert Payson	*Treve*
Thomas, Lowell	*Raiders of the Deep*
Tomlinson, Everett T.	*The Campfire of Mad Anthony*
Tomlinson, Everett T.	*Three Young Continentals*
Tomlinson, Everett T.	*Scouting with Daniel Boone*
Tomlinson, Everett T.	*Washington's Young Aids*
Trowbridge, J. T.	*Cudjo's Cave*
Twain, Mark	*Adventures of Huckleberry Finn*
Twain, Mark	*Adventures of Tom Sawyer*
Verne, Jules	*Mysterious Island*
Wasson, M.	*Miss Nancy Prentiss*
Watkins, Shirley	*Jane Lends a Hand*
Weber, Leora Mattingly	*Rocking Chair Ranch*
Webster, Jean	*Dear Enemy*
Wells, H. G.	*War of the Worlds*

Wetmore and Gray	*Last of the Great Scouts*
White, Hervey	*Snake Gold*
White, Stewart Edward	*Daniel Boone, Wilderness Scout*
White, Stewart Edward	*The Blazed Trail*
White, Stewart Edward	*The Long Rifle*
White, Stewart Edward	*The Riverman*
White, Stewart Edward	*The Silent Places*
White, Stewart Edward	*The Gray Dawn*
Widdemer, Margaret	*Rhinestones*
Wiggin, Kate Douglas	*The Birds' Christmas Carol*
Wiggin, Kate Douglas	*Rebecca of Sunnybrook Farm*
Wiggin, Kate Douglas	*The Story of Patsy*
Wiggin, Kate Douglas	*Polly Oliver's Problem*
Wiggin, Kate Douglas	*Penelope's Progress*
Winston, Robert A.	*Dive Bomber*
Wister, Owen	*The Virginian*
Wright, Harold Bell	*The Shepherd of the Hills*
Wyss, David	*Swiss Family Robinson*

of the books contain a strong element of adventure; 29 of the stories are about animals—dogs, deer, bears, seals, cats, horses, wolves, elephants, and foxes; 11 are about sports of various kinds; five are of a humorous type; three are definitely love stories. Thirty-seven of the group can properly be called boys' stories, 20 are chiefly of interest to girls, and the remaining 43 can be classified as stories for both boys and girls. In 52 of the books, conversation forms a large part of the content.

Two Hundred Fifty Books Popular with Slow Learning Pupils

Beryl McAdow, head of the English department of the Alamosa High School, Alamosa, Colorado, kept a record for ten years of the books which were read and enjoyed by pupils with limited mental ability (IQs 75–105).[9] Each book that was read during this period was classified by the pupil as "liked," "liked very much," or "disliked."

From these data she selected a list of the 250 most popular books. This selection of books is presented in Table XII. Every book in the list was read by at least 100 pupils. No book was included unless ninety or more pupils classified it as "liked very much."

These 250 books which have been tried and proved with retarded readers of below-average mental ability should make a fine addition to a school's remedial reading library.

A List of Simplified Classics

In an attempt to meet the needs of pupils with limited reading abilities, a number of publishers have brought out adaptations and simplifications of many of the great classics. A recent study[10] has been made of such books. In Table XIII are found 80 titles of simplified classics which are now available. The publisher and grade level of each book is also given. According to the author of this investigation, "All but one of the grade ratings given by the publisher were con-

[9] Beryl McAdow, "Ten Years With Slow Readers," *The English Journal,* Vol. 30, September, 1941, pp. 573–579.

[10] Daniel J. Assuma, "A List of Simplified Classics," *English Journal,* Vol. 42, February, 1953, pp. 94–96.

firmed by either the Dale-Chall or the Flesch formula. The items asterisked here are, according to the Dale-Chall formula, more difficult than they are rated. The one daggered was rated 7–8 according to Dale-Chall and 6 according to Flesch."

The list presented in Table XIII should provide teachers with a wealth of interesting and worthwhile literature which can be comprehended by many of the poorer readers in the upper grades and high school.

Sources of Information Concerning Children's Books

The teacher who is in charge of the reading program must keep well posted with respect to the books that are available for the use of pupils. Books to satisfy most every interest and ability level are in existence. The task is to locate them and secure them for the library. New books of excellent quality, many of which are especially designed for retarded readers, are constantly coming off the press. A brief description of some of the sources which the teacher should consult when recommending books to individual pupils or when adding books to the library is given in the following paragraphs.

Children's Catalog, compiled by Ruth Giles and Dorothy E. Cook, Eighth Edition Revised, New York, H. W. Wilson Company, 1951. (Ninth Edition scheduled for publication, Fall, 1956.)

This is a dictionary catalog of 3400 books. Under one alphabet can be found the author, title, and subject entries. Full bibliographic information is given under the author entry and also the grade level for which the book is appropriate. A teacher desiring to locate a book on fishing for a boy who is particularly interested in this activity would look under the heading, "Fishing." There he would find a list of both fiction and non-fiction books dealing with this subject. Books in this catalog range in difficulty from the pre-school level through grade 9. New editions of this volume and supplements are constantly coming out. This feature serves to keep the teacher abreast of the ever increasing new literature of children's books.

TABLE XIII

A List of Simplified Classics

AUTHOR AND TITLE	PUBLISHER	GRADE DIFFICULTY
Alcott, Louisa May, *Little Women*	Dutton	7–9
Andersen, Hans Christian, *Fairy Tales*	Appleton-Century-Crofts	5
Austen, Jane, *Pride and Prejudice*	Laidlaw	7–8
Ballantyne, R. M., *The Coral Island*	Dutton	7–9
Blackmore, Richard, *Lorna Doone*	Globe	7–8
Blackmore, Richard, *Lorna Doone*	Laidlaw	7–8
Blackmore, Richard, *Lorna Doone*	Scott, Foresman	4–5
Bronte, Charlotte, *Jane Eyre*	Globe	5–6
Bronte, Charlotte, *Jane Eyre*	Laidlaw	7–8
Bronte, Emily, *Wuthering Heights*	Globe	6
Bronte, Emily, *Wuthering Heights*	Laidlaw	7–8
Brooks, Elbridge S., *A Boy of the First Empire*	Appleton-Century-Crofts	5
Buck, Pearl, *The Good Earth*	Globe	7–8
Bunyan, John, *Pilgrim's Progress*	Standard Publishing Co.	7–12
Clemens, Samuel L., *A Connecticut Yankee at King Arthur's Court*	Globe	6–8*
Clemens, Samuel L., *Huckleberry Finn*	Scott, Foresman	4–5
Clemens, Samuel L., *The Prince and the Pauper*	Sanborn	5–9
Clemens, Samuel L., *Tom Sawyer*	Scott, Foresman	4–5
Collodi, C., *Pinocchio*	Appleton-Century-Crofts	5
Cooper, James Fenimore, *The Deerslayer*	Sanborn	5–9
Cooper, James Fenimore, *The Last of the Mohicans*	Scott, Foresman	4–5*
Dana, Richard Henry, *Two Years Before the Mast*	Sanborn	5–9
Defoe, Daniel, *Robinson Crusoe*	Appleton-Century-Crofts	5
Defoe, Daniel, *Robinson Crusoe*	Sanborn	5–9
Defoe, Daniel, *Robinson Crusoe*	Scott, Foresman	4–5
Dickens, Charles, *David Copperfield*	Globe	7–8
Dickens, Charles, *David Copperfield*	Harcourt, Brace	7–8

Dickens, Charles, *David Copperfield*	Laidlaw	7–8
Dickens, Charles, *David Copperfield*	Scott, Foresman	4–5
Dickens, Charles, *Great Expectations*	Harcourt, Brace	5–7
Dickens, Charles, *Oliver Twist*	Globe	5–6
Dickens, Charles, *Oliver Twist*	Laidlaw	7–8
Dickens, Charles, *A Tale of Two Cities*	Globe	5–6
Dickens, Charles, *A Tale of Two Cities*	Harcourt, Brace	7–8
Dickens, Charles, *A Tale of Two Cities*	Laidlaw	7–8
Dodge, Mary Mapes, *Hans Brinker*	Appleton-Century-Crofts	5
Dumas, Alexander, *The Count of Monte Cristo*	Globe	6–8*
Dumas, Alexander, *The Three Musketeers*	Globe	6–8*
Dumas, Alexander, *The Three Musketeers*	Sanborn	5–9
Eight Treasured Stories	Scott, Foresman	4–5
Eliot, George, *The Mill on the Floss*	Globe	5–7
Eliot, George, *Silas Marner*	Globe	6
Eliot, George, *Silas Marner*	Laidlaw	7–8
Eliot, George, *Silas Marner*	Scott, Foresman	4–5
Grimm's Fairy Tales	Dutton	7–9
Hawthorne, Nathaniel, *A Wonder Book*	Appleton-Century-Crofts	5
Hawthorne, Nathaniel, *A Wonder Book*	Dutton	4–6
Hawthorne, Nathaniel, *Tanglewood Tales*	Dutton	4–6
Hawthorne, Nathaniel, *The House of the Seven Gables*	Globe	4–8
Hughes, Thomas, *Tom Brown's School Days*	Dutton	7–9
Hugo, Victor, *Les Miserables*	Globe	5–7
Hugo, Victor, *Les Miserables*	Laidlaw	7–8
Hugo, Victor, *Les Miserables*	Liveright Publishing Corp.	7–12
Macdonald, George, *The Princess and Curdie*	Dutton	4–6
Macdonald, George, *The Princess and the Goblin*	Dutton	4–6
Melville, Herman, *Moby-Dick*	Laidlaw	7–8*
Melville, Herman, *Moby-Dick*	Sanborn	5–9
Melville, Herman, *Moby-Dick*	Scott, Foresman	4–5
Modern Short Stories	Globe	7–8
Oman, Carola, *Robin Hood*	Dutton	4–6

TABLE XIII (*Continued*)

AUTHOR AND TITLE	PUBLISHER	GRADE DIFFICULTY
Poe, Edgar Allan, *Short Stories*	Laidlaw	7–8
Ruskin, John, *The King of the Golden River*	Appleton-Century-Crofts	5
Scott, Sir Walter, *Ivanhoe*	Globe	6–8*
Scott, Sir Walter, *Ivanhoe*	Laidlaw	7–8*
Scott, Sir Walter, *Kenilworth*	Globe	6–8*
Scott, Sir Walter, *Quentin Durward*	Globe	7
Sewell, Anna, *Black Beauty*	Dutton	4–6
Six Great Stories	Scott, Foresman	4–5
Spyri, Johanna, *Heidi*	Dutton	4–6
Stevenson, Robert Louis, *The Black Arrow*	Globe	6–8*
Stevenson, Robert Louis, *Kidnapped*	Globe	5–6
Stevenson, Robert Louis, *Treasure Island*	Dutton	7–9
Stevenson, Robert Louis, *Treasure Island*	Sanborn	5–9
Stevenson, Robert Louis, *Treasure Island*	Scott, Foresman	4–5
Stratton, Clarence, *When Washington Danced*	Scott, Foresman	4–5†
Stuart, Jesse, *Hie to the Hunters*	Harcourt, Brace	6–7
Swift, Jonathan, *Lemuel Gulliver in Lilliput Land*	Sanborn	5–9
The Arabian Nights	Appleton-Century-Crofts	5
Verne, Jules B., *Around the World in Eighty Days*	Scott, Foresman	4–5
Wyss, J. R., *Swiss Family Robinson*	Dutton	7–9

The Booklist: A Guide to New Books, Chicago, American Library Association.

This journal is published twice per month and contains an annotated and classified list of currently published books. A special section is devoted to children's books. In most issues is also found a list of free and inexpensive pamphlet materials which teachers may secure for use in their classes.

The Horn Book Magazine, Boston, The Horn Book, Inc.

This magazine which is published six times a year is the only one which is devoted exclusively to books and reading for children and young people. As new books come off the press, they are described in sufficient detail to enable the teacher to decide whether or not they should be purchased for school use. The teacher of remedial reading or librarian will find this little journal to be indispensable.

Standard Catalog for High School Libraries, Sixth Edition, New York, H. W. Wilson Company, 1952. (Seventh Edition scheduled for publication, Fall, 1957.)

This is a selected catalog of books recommended for junior and senior high school libraries. Books are classified according to title, author, and subject matter. For example, under the heading, "Baseball," 66 different books are listed. The teacher can find titles of numerous books on the subject of aviation, nursing, or most any other subject of interest to adolescents. This volume is kept up to date by means of frequently appearing supplements and new editions.

Patterns in Reading, Chicago, American Library Association, 1954.

This annotated book list includes over 100 interests of youth based on experiences of librarians in the Cleveland Public Library and elsewhere. Some of the headings under which books are listed are:

Dating, Deep-Sea Diving, Doctors, Horses, Nurses, Sports, and Whaling.

Adventure with Books, Chicago, National Council of Teachers of English, 1950.

This is an annotated and graded list of 1000 titles useful for children in the elementary grades. Those books which have been found of value with retarded readers are given a special marking in the list so that they are easy to identify.

Bibliography of Books for Children, Washington, D.C., Association for Childhood Education, 1948.

This is another valuable graded list of books which interest children. The titles are organized under 18 different subject-matter categories, which aids teachers in making selections.

Other Book Lists

In addition to the sources which have been described, there are others which the teacher of remedial reading will find helpful. A valuable listing of some of these has been made by Hobson and Haugh.[11] A number of their selections plus other important book lists are presented as follows:

"Bibliography for Retarded Readers," Reading Clinic, St. Louis Public Schools, St. Louis, Missouri, 5 pp. (mimeographed).

Books for Adult Beginners (Grades 1 to 8), American Library Association, Chicago, 1946.

Bush, Bernice C., Anita E. Dunn, and Mabel E. Jackman, "Fare for the Reluctant Reader," State University of New York, State College for Teachers, Albany, New York, 1951, 43 pp. (mimeographed).

Durrell, Donald D., and Helen B. Sullivan, *High Interest Low Vocabulary Book List,* Education Clinic, Boston University School of Education, Boston, Massachusetts, 1952, 35 pp.

[11] Cloy S. Hobson, and Oscar M. Haugh, "Materials for the Retarded Reader," Lawrence, Kansas, University of Kansas Bulletin of Education, Vol. 8, No. 1, November, 1953, pp. 18–29.

Eakin, Mary K., "Trade Books for Poor Readers," *Clinical Studies in Reading, II,* Supplementary Educational Monographs No. 77, University of Chicago Press, Chicago, Illinois, January, 1953, pp. 177–181.

"Easy Books Which Appeal to Poor Readers," Reading Clinic, Western Reserve University, Cleveland, Ohio, 2 pp. (mimeographed).

Hill, Margaret Keyser, *A Bibliography of Reading Lists for Retarded Readers,* State University of Iowa, Iowa City, Iowa, Bulletin No. 681, April 1, 1953.

La Plante, Effie, "Rapid Reading Books," Cataloging Section, Division of Libraries, Chicago Public Schools, Chicago, Illinois, November, 1952, 9 pp. (mimeographed).

Richards, Margaret, "Books for Slow Readers," Wilson Library Bulletin, Vol. 14, May, 1940, pp. 642–645.

Slater, Russell, *Books for Youth Who Dislike Reading,* Bulletin of the Ohio Conference on Reading, No. 2, Ohio State University Press, Columbus, Ohio, 1941, 16 pp.

Smith, Nila B., "Helpful Books to Use with Retarded Readers," *Elementary School Journal,* Vol. 52, March, 1952, pp. 390–397.

Spache, George, *Good Books for Poor Readers,* Reading Laboratory and Clinic, University of Florida, Gainesville, Florida, 1954.

Strang, Ruth, Christine B. Gilbert, and Margaret C. Scoggin, *Gateway to Readable Books,* H. W. Wilson Company, New York, 1952, 148 pp.

Subject Index to Books for Intermediate Grades, and *Subject Index to Books for Intermediate Grades, First Supplement,* American Library Association, Chicago, Illinois.

The Right Book for the Right Child, Third Edition, John Day Company, New York.

Warner, Dorothy, "Bibliography of Reading Materials Suitable for Mentally Retarded Children (Pre-Primer to Grade Five)," Division of Special Education, State Department of Public Instruction, Topeka, Kansas, 4 pp. (mimeographed).

Textbooks and Workbooks for Teaching Reading Skills

A well-balanced remedial or developmental reading program should not only encourage pupils to read widely among fiction and nonfiction books in the general literature field, but should also make some provision for specific instruction in work-type reading methods. Frequently one day per week is devoted to this phase of the work.

Instruction and practice are concentrated at such times on such exercises as the following:

1. Vocabulary building exercises
2. Reading for details
3. Reading for the central idea of a selection
4. Reading to answer specific questions
5. Skimming
6. Rate-building exercises
7. Oral reading and phrasing
8. Reading in specific subject-matter fields
9. Newspaper reading
10. Making of a précis
11. Outlining
12. Using a card catalogue
13. Using the table of contents and indexes of a book
14. Using dictionaries, atlases, encyclopedias, and other study aids

The teacher may design his own exercises for the pupils to use, or one or more of the commercially available textbooks or workbooks in this field may be employed. The pupil's own subject-matter textbooks and other textbooks of a similar nature which are at hand also provide valuable material for use in developing better study-type reading skills. Brief descriptions of some widely used reading textbooks and workbooks follow.

Reading Skilltexts, Columbus, Ohio, Charles E. Merrill Company.

These popular workbooks aid the pupil in developing readiness skills, comprehension skills, vocabulary meanings, word analysis skills, organization skills, interpretation skills, and locating information skills. The booklets are available at nine levels of difficulty as follows: *We Can Read* (Grade 1—Preprimer), *Bibs* (Grade 1), *Nicky* (Grade 2), *Uncle Funny Bunny* (Grade 3), *Uncle Ben* (Grade 4), *Tom Trott* (Grade 5), *Pat the Pilot* (Grade 6), *Modern Reading I* (Grade 7), and *Modern Reading II* (Grade 8). The books, however, do not carry the grade designations on the cover. They can, therefore, be used with pupils not only at the grade school levels, but also in the junior

and senior high school for remedial purposes. Free diagnostic reading tests are provided with each booklet.

Phonics Skilltexts, Columbus, Ohio, Charles E. Merrill Company.

These workbooks are designed especially to develop skill in the use of phonics. There are four booklets in the series: *A* (for grades 1–2), *B* (for grades 2–3), *C* (for grades 3–4), and *D* (for grades 4–5). They can also be effectively employed with pupils in the upper grades and high school who need remedial work in this area.

Guiler, W. S., and J. H. Coleman, *Getting the Meaning,* Philadelphia, J. B. Lippincott Company.

There are three workbooks in this series. Book 1 is designed primarily for pupils in grades 7 or 8, Book 2 for pupils in grades 9 or 10, and Book 3 for pupils in grades 11 or 12. There are, however, no grade designations on the books. This makes it possible to use them with any group for which the material is appropriate. Book 1, for example, can be very effectively used with retarded readers in senior high schools. Each book contains 36 units of work, enough for regular practice two or three times per week for a semester. The practice exercises in these two books require the pupil to focus his attention on "Getting Word Meanings," "Choosing the Best Title," "Getting the Main Idea," "Getting the Facts," "Making an Outline," and "Drawing Conclusions."

Hovious, Carol, *Flying the Printways,* Boston, D. C. Heath and Company, 525 pp.

This textbook is well suited for use in Freshman or Sophomore high-school reading improvement classes. It contains many interesting stories as well as practice exercises to develop specific reading skills. The pictures in the book and the general organization both are of the type that make an appeal to the pupils for whom it is intended.

Hovious, Carol, *Following Printed Trails*, Boston, D. C. Heath and Company, 371 pp.

Following Printed Trails is more difficult and less interesting than *Flying the Printways* and therefore should probably not be used with Freshman or Sophomore classes, particularly if the pupils are severely retarded in reading. It should be of value when used with good readers in senior high school or with college students.

Simpson, Elizabeth A., *SRA Better Reading Books* (Book 1, Book 2, Book 3), Chicago, Illinois, Science Research Associates.

According to the Dale-Chall formula, the articles in *Book 1* range in difficulty from Grade 5.0 to 6.9; in *Book 2* from Grade 7.0 to 8.9; and in *Book 3*, from Grade 9.0 to 10.9. The pupil should use the book that is nearest his present level of reading ability. Each book includes 20 highly interesting articles. For each article there is a 20-item comprehension test. By means of graphs the pupil keeps a record of his reading progress.

Other Textbooks and Workbooks

Space will not permit specific descriptions of all the excellent textbooks and workbooks that are available. In addition to those which have already been mentioned, the following have been found useful by many teachers:

Bessey, Mable A., and Isabelle P. Coffin, *Reading for Understanding*, New York, D. Appleton-Century Company, Inc., 325 pp.

Center, Stella S., and Gladys L. Persons (a three-book series), *Experiences in Reading and Thinking*, 657 pp.; New York, The Macmillan Company.

Gainsburg, J. C., and S. I. Spector, *Better Reading*, New York, Globe Book Company, Inc., 350 pp. (especially designed for junior high school pupils).

Gates, Arthur I., and Celeste Comegys Peardon, *Practice Exercises in Reading*, Books III, IV, V, and VI, New York, Bureau of Publications, Teachers College, Columbia University.

Hart, Archibald, *Twelve Ways to Build a Vocabulary,* New York, E. P. Dutton and Company.

Hovious, Carol, *Wings for Reading,* New York, D. C. Heath and Company.

Knight, Pearle E., and Arthur E. Traxler, *Read and Comprehend,* New York, D. C. Heath and Company.

Lewis, Norman, *How to Read Better and Faster,* New York, Thomas Y. Crowell Company.

McCall, W. A., and Lelah Mae Crabbs, *Standard Test Lessons in Reading,* Books A, B, C, D, and E, New York Bureau of Publications, Teachers College, Columbia University. (Grades 2–12)

Murphy, George, and Helen Rand Miller, *Reading for Fun,* New York, Henry Holt and Company.

Simpson, Robert G., and Ellen C. Gilmer, *Developmental Reading Series,* Books II and III, Minneapolis, Minnesota, Educational Test Bureau.

Strang, Ruth, *Study Type of Reading Exercises,* New York, Bureau of Publications, Teachers College, Columbia University.

Strang, Ruth, and Ralph Roberts, *Teen-Age Tales,* Books 1 and 2, New York, D. C. Heath and Company.

Witty, Paul, *How to Become a Better Reader,* Chicago, Illinois, Science Research Associates.

Magazines and Newspapers

The reading materials for either remedial or developmental purposes need not be restricted to books. In fact, it is most desirable that an abundance of materials in magazine and newspaper form be provided. Teachers often find that pupils will read such materials when they will read nothing else. Schools should subscribe to the local newspapers and to as many other newspapers as possible. The various news weeklies such as *My Weekly Reader, Scholastic, Young America, Current Events, Every Week,* and *Our Times* should be made available to the pupils. There are many magazines which make a strong appeal to pupils. Martin[12] has listed 18 which are of particular value in the elementary school and which can be used to

[12] Laura K. Martin, *Magazines for School Libraries,* New York, H. W. Wilson Company, 1950, pp. 23–24.

advantage by retarded readers in the junior and senior high school. The titles of these magazines are as follows:

American Girl
American Junior Red Cross News
Boy's Life
Calling All Girls
Child Life
Children's Activities
Children's Play Mate
Collins Magazine
Highlights for Children
Jack and Jill
Junior
Junior Scholastic
Open Road for Boys
Story Parade
True Comics
Uncle Ray's Magazine
Wee Wisdom
World Youth

Another important list is one headed "Magazines Recommended for Both High School and Elementary Grades."[13] This list consists of the following 20 titles:

American Forests
American Home
Better Homes and Gardens
Canadian Nature
Cornell Rural School Leaflets
Deltagram
Flying
Junior Natural History
Model Airplane News
National 4-H Club News
National Geographic
National Humane Review
Negro History Bulletin
Plays
Popular Mechanics
Popular Photography
Popular Science Monthly
Radio News
Travel
World News of the Week

The resourceful teacher can sometimes find wholesome magazines on the newsstands which deal with western story or detective themes. Some may object that such reading is unworthy of being fostered in schools. As long, however, as such material is not vicious or immoral, it may serve the useful purpose of getting a given pupil to read something who has been reading nothing. A good rule to follow is: "Begin where the pupil is, even if that must be with comic strips. Only by beginning there and working patiently and long, can the pupil be led to more worthy selections."[14]

[13] *Ibid.*, p. 44.
[14] *Reading Instruction in Secondary Schools*, National Education Association Research Bulletin, Vol. 20, No. 1, January, 1942, p. 22.

The philosophy of this last quotation has been translated into action recently by Dr. Robert L. Thorndike of Columbia University and Mr. Harold Downes of the Lynn, Massachusetts, Public Schools for they have prepared a *Superman Work Book*[15] which uses for its content the adventures of this hero of the comic strips. In the *Suggestions for Teachers* which accompanies this workbook, Dr. Thorndike says,

> Superman provides excellent material for extending and increasing the child's vocabulary. A complete 64 page issue of Superman Magazine contains about 10,000 words and about 1500 to 2000 different words. Among these there will be many which are new to the child, or which he knows only vaguely. New vocabulary is encountered in these stories at quite a rapid rate, and these are good, sound words which the pupil needs to know.

Each section of the workbook is supplied with (1) a multiple-choice vocabulary pretest, (2) vocabulary study exercises, and (3) a vocabulary check test for review.

Witty[16] has made a study which gives information with respect to the comic strips and comic magazines which are popular with pupils in the seventh and eighth grades. The results of this investigation which included the replies of 224 pupils in the Chicago area are presented in accompanying tables. Table XIV lists the 16 most popular comic magazines and Table XV the 15 most popular comic strips.

Classics Illustrated and Other Comic-Type Magazines. The series known as *Classics Illustrated* can be secured from newsstands or ordered from the publishers directly.[17] In appearance these booklets resemble the typical comic magazines, but their contents deal with the masterpieces of literature. Well over 100 issues have already appeared, including such titles as *Ivanhoe, Moby Dick, A Tale of Two*

[15] Published by the Juvenile Group Foundation, 125 East 46th Street, New York City, New York.

[16] Paul Witty, Ethel Smith, and Anne Coomer, "Reading the Comics in Grades VII and VIII," *Journal of Educational Psychology,* Vol. 33, March, 1942, pp. 173–182.

[17] Published by the Gilberton Company, Inc., 101 Fifth Avenue, New York 3, New York.

Cities, Oliver Twist, Jane Eyre, Silas Marner, David Copperfield, and *The Iliad.* These little magazines are colorful and filled with action.

A similar series is known as *Classics Illustrated Junior.*[18] The vocabulary used is at a still lower level of difficulty than the *Classics Illustrated.* Among the titles which have already been published are *Beauty and the Beast, Puss in Boots,* and *Rumpelstiltskin.* Illustrated booklets which deal with stories from the Bible are also available. These include *Tales from the Great Book,*[19] and *Picture Stories from the Bible.*[20]

TABLE XIV

Comic Magazines Most Popular with Pupils in Grades 7 and 8
(*From Witty, et al.*)

NAME OF MAGAZINE	RANK		
	BOTH SEXES	GIRLS	BOYS
Batman	1.0	2.0	1.0
Superman	2.0	1.0	2.0
Action	3.0	4.0	3.5
Detective	4.0	5.5	3.5
Famous Funnies	5.0	3.0	9.0
Ace	6.0	9.0	7.0
*Wings**	7.0	15.0	5.0
Jungle	8.0	7.5	10.0
Flash	9.5	12.5	7.0
True	9.5	12.5	7.0
Adventure	11.0	7.5	12.5
Mystery	12.0	5.5	15.5
Weird	13.0	11.0	12.5
Magic	14.0	10.0	15.5
Shadow	15.0	14.0	14.0
War	16.0	...	11.0

* Not included on the check list. It was added spontaneously by the pupils in the space provided for other titles.

Material in this form makes a tremendous appeal to pupils not only in the grammar grades but also in the junior and senior high

[18] Published by Famous Authors, Ltd., 101 Fifth Avenue, New York 3, New York.

[19] Published by Famous Funnies Publications, 500 Fifth Avenue, New York 36, New York.

[20] Published by M. C. Gaines, 225 Lafayette Street, New York.

PLATE 11. The School's Central Library Plays an Important Part in a Successful Remedial Reading Program

PLATE 12. Magazines and Newspapers Should Not Be Overlooked as an Aid in Developing Reading Speed and Comprehension

PLATE 13. The Newspaper Idea Back of *My Weekly Reader* Appeals to Many Older Pupils with Limited Reading Ability

PLATE 14. This Boy Is Reading a Story He Has Composed and Which the Teacher Has Typed for Him

school. The content of the booklets is of high caliber and should serve to develop an interest in fine literature on the part of pupils who might fail to respond to the classics directly. The vocabulary is sufficiently easy to permit their use with most retarded readers.

TABLE XV

Most Popular Comic Strips in Grades 7 and 8
(*From Witty, et al.*)

NAME OF COMIC STRIP	RANK		
	BOTH SEXES	GIRLS	BOYS
"Smiling Jack"	1.0	2.5	1.0
"Dick Tracy"	2.0	2.5	2.0
"Blondie"	3.0	1.0	4.0
"Captain and the Kids"	4.0	11.0	3.0
"Terry and the Pirates"	5.0	5.0	5.0
"Donald Duck"	6.0	10.0	6.0
"Flash Gordon"	7.0	8.0	8.0
"Brenda Starr"*	8.5	4.0	14.5
"Superman"	8.5	9.0	10.0
"Scarlet O'Neil"*	10.0	7.0	12.0
"Dixie Dugan"	11.0	6.0	14.5
"Henry"	12.5	13.0	10.0
"Mickey Mouse"	12.5	14.5	7.0
"Li'l Abner"	14.0	14.5	10.0
"Gasoline Alley"	15.0	12.0	13.0

* Not included on the original check list. These two titles were added spontaneously by the pupils in the space provided for that purpose.

Summary

The only way a poor reader may become a good reader is through reading. Because of this fact, it is of the greatest importance that schools make available for the use of retarded readers an abundance of reading materials of many types and levels of difficulty. Books and magazines on a wide range of subjects as well as newspapers and study-type exercises should be used. The content of the material should be sufficiently mature to interest pupils but should contain a vocabulary load which will permit easy comprehension. This will make it possible for the retarded reader to experience success in his work from the very beginning.

The titles of many books which have been successfully used with poor readers in elementary and secondary schools are presented in this chapter. These are included under the headings *Easy Reading Books for Older Children, Easy Books for Severely Retarded Readers of Junior High School Age, One Hundred Books Most Enjoyed by Retarded Readers in Senior High Schools,* and *A List of Simplified Classics.* Magazines, newspapers, and workbooks which schools can profitably use in connection with their remedial programs are described and evaluated.

Teachers of remedial reading should not only avail themselves of the materials described in this chapter, but should be on the alert to discover other equally valuable materials. For this purpose the following sources are most helpful: *The Children's Catalog, The Booklist: A Guide to New Books, The Horn Book Magazine,* and the *Standard Catalog for High School Libraries.* The teacher will also find very useful the booklists reported in the chapter which have been especially prepared for retarded readers by schools, reading clinics, and libraries.

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PART 2

REMEDIAL TEACHING OF ARITHMETIC, SPELLING, HANDWRITING, AND FUNDAMENTALS OF ENGLISH

Chapter 9

Remedial Arithmetic

Introduction

It is a well-known fact that many pupils in our upper grades and high schools are deficient in the fundamentals of arithmetic. Some do not know the primary facts of addition, subtraction, multiplication, and division, to say nothing of such processes as simple fractions. This fact is borne out by the results of studies which have been conducted in schools as well as by data which have been gathered in educational clinics. For example, when Wilson[1] gave simple tests of the fundamental operations in arithmetic to children in 15 representative towns and cities in the metropolitan Boston area, he found that approximately 70 per cent of the seventh and eighth graders needed corrective instruction. The tests used in this survey were the *Wilson Process Tests,* revised, in addition, subtraction, multiplication, short division, and long division together with the A-3 test covering the decade facts to 39+9. These tests are exceedingly simple and represent only the basic elements of arithmetic which should be perfectly mastered by every pupil, yet a majority of pupils of junior-high-school age showed marked deficiencies in their use.

In Table XVI is presented evidence of the wide variations in arithmetic ability found among high-school pupils. These data were

[1] For a review of studies which show pupil deficiencies in arithmetic see G. M. Wilson, "Toward Perfect Scores in Arithmetic Fundamentals," *Arithmetic Teacher,* Vol. 1, December, 1954, pp. 14–15.

obtained from administering the *Stanford Achievement Test*,[2] Advanced Battery, Form D to 204 ninth-grade pupils in a central Illinois city. Although the group as a whole did very well, there were at least 30 or 35 of these pupils who definitely needed remedial instruction in arithmetic.

TABLE XVI

Arithmetic Computation Grade Levels Attained by 204 Ninth-Grade Pupils

GRADE EQUIVALENTS	NUMBER OF PUPILS
10.0 and up	97
9.0–9.9	46
8.0–8.9	26
7.0–7.9	22
6.0–6.9	9
5.0–5.9	3
4.0–4.9	1
	N = 204

Businessmen and employers frequently complain that high-school graduates applying for positions do not know how to add, subtract, multiply, and divide. H. C. Taylor, head of the psychological research section of the Western Electric Company, Cicero, Illinois, recently made the following statement. He said,

> Tests were given to 40 graduates of technical high schools who sought jobs in skilled trades. One question they were asked was, "What is $\frac{1}{10}$ of 4.4787?" Five different answers were given despite the fact that all the applicant had to do was point off the decimal correctly. Fifteen per cent of the boys missed this item.

Mr. C. A. Rothe, Assistant Supervisor of Apprenticeship, Industrial Commission, Milwaukee, Wisconsin, speaking before a group of teachers made the following comment with respect to the arithmetical ability of many high-school pupils. "Our modern industry is not satisfied with your present mathematics instruction. . . . Many high-school graduates coming into my office seeking apprenticeship are

[2] Published by World Book Company, Yonkers-on-Hudson, New York.

given this simple problem: *If you work for me for 8 hours and 15 minutes and I agree to pay you 22½¢ per hour, how much money would I owe you?* Too often the answer is \$185.625 or \$18.5625. Frequently the applicant endeavors to multiply common fractions by decimals or is inclined to dodge the fractions and decimals entirely."[3]

The United States Navy has also complained about the inability of high-school graduates to do simple problems in arithmetic. Admiral Nimitz comments as follows regarding a group of young men seeking positions in that branch of the service.

> A carefully prepared selective examination was given to 4,200 entering freshmen at 27 of the leading universities and colleges of the United States. Sixty-eight per cent of these men were unable to pass the arithmetical reasoning test. Sixty-two per cent failed the whole test, which included arithmetical combinations, vocabulary, and spatial relations. The majority of the failures were not merely borderline, but were far below passing grade.[4]

The writer in his experience has encountered a number of well-educated individuals who were suffering from extreme retardation in arithmetic and who could surely have profited from remedial instruction if it had been given when they were in school. A young lady who had just finished high school asked the writer this question: "Which is larger, 7⅜ or 7⅝ and how do you tell?" The worst case, however, which the writer has observed was that of a graduate student who, when asked the question, "How much is 4 times 4?" replied 20. She was told that this was incorrect and was asked to try the problem again. The second time she secured the right answer after a laborious process of counting it out in groups of 4. She said to herself, "Four, eight, twelve, sixteen." The first time she apparently had added one too many groups of fours. Another student, an undergraduate, stated that she did not know the multiplication tables. She said, "If you should ask me how much are 6 times 7, I couldn't tell you,

[3] C. A. Rothe, "Mathematics as Applied to Apprenticeship in Trades," *The Mathematics Teacher,* Vol. 35, January, 1942, p. 30.

[4] Letter from Admiral C. W. Nimitz to Louis J. Budvold, published in *The Mathematics Teacher,* Vol. 35, February, 1942, p. 88.

but I do know how much 6 times 5 are and by a little manipulating I could get the answer to 6 times 7."

These examples of retardation in arithmetic point to the need for more adequate instruction in our schools. Many pupils who are deficient in arithmetic have good general mental ability and have responded well to remedial teaching in those instances where it has been given. Arthur W. is one such case.

CASE OF ARTHUR W.

Arthur was fourteen years of age and in the ninth grade. Although his Otis IQ was 109, his grade score on the computation section of the *New Stanford Arithmetic Test* was only 3.6. His average arithmetic grade was 4.2. He came to the clinic at the University of Illinois and was assigned to a graduate student to be tutored. A careful appraisal was made of his strong and weak points in arithmetic by means of the *Buswell-John Diagnostic Chart for Fundamental Processes in Arithmetic.* Following this diagnosis a number of appropriate remedial exercises were employed. Among the materials used were the workbooks entitled *Teaching and Practice Exercises in Arithmetic*[5] which have been designed for use with the Buswell-John test. The boy immediately began to show improvement. At the outset he did not know the primary addition combinations, he could not subtract where borrowing was involved, he was weak in the process of multiplication, and knew nothing whatsoever of long division. About six weeks later, he was retested with an equivalent form of the *New Stanford Arithmetic Test.* The results showed that he was now able to do arithmetic computation at the 6.0 grade level and his average arithmetic ability had moved to 6.7. Thus in the short space of six weeks he had made a gain of two and one-half years in arithmetic ability. It was also evident to the tutor as well as others who observed him, that his attitude toward arithmetic had definitely changed for the better.

[5] G. T. Buswell and Lenore John, *Teaching and Practice Exercises in Arithmetic,* Chicago, Wheeler Publishing Company.

Identifying Pupils Needing Remedial Instruction

Through informal methods it is often possible to locate those pupils who are deficient in the fundamentals of arithmetic. The papers which certain pupils turn in to the mathematics and science teachers often contain telltale evidence that their arithmetic ability is weak or entirely lacking. Other glaring errors in the fundamentals of arithmetic may show up while the pupils are working at the blackboard. More precise techniques for appraising the arithmetic skills of pupils are available in the form of standardized arithmetic survey tests. These tests as a rule show the grade levels at which pupils perform the various arithmetic processes, and are very useful in screening out individuals needing careful diagnostic and remedial attention. In the following paragraphs a few of the better arithmetic survey tests are described.

Stanford Arithmetic Tests.[6] These tests may be obtained at three difficulty levels—*Elementary,* for grades 3–4, *Intermediate,* for grades 5–6, and *Advanced,* for grades 7–9. They cover both computation and problem solving skills. The results are interpreted in terms of age, grade, and percentile norms. Several forms of each test are available. These tests are excellent for survey purposes, but are not highly diagnostic.

California Arithmetic Tests.[7] There are four tests in this series—*Primary* (Grades 1–3), *Elementary* (Grades 4–6), *Intermediate* (Grades 7–9), and *Advanced* (Grades 9–14). Both problem solving and fundamental computational skills are measured. Each test also is divided into sub-tests which makes possible a partial diagnosis of the particular difficulties of pupils. These tests are available in several forms and may be machine scored.

Lee-Clark Arithmetic Fundamentals Test.[8] This test is designed to

[6] Published by the World Book Company, Yonkers-on-Hudson, New York.
[7] Published by the California Test Bureau, 5916 Hollywood Blvd., Los Angeles 28, California.
[8] Published by the California Test Bureau, 5916 Hollywood Blvd., Los Angeles 28, California.

provide a survey of high school students' difficulties in 20 basic processes of arithmetic and to serve as a basis for remedial teaching. Percentile norms are provided for Grades 7 through 12. The test is obtainable in two equivalent forms. The time required for testing is 25 minutes.

Other Survey Tests. Other arithmetic tests which can be used to screen out pupils who need remedial instruction are the following:

Coordinated Scales of Attainment: Arithmetic. For grades 4 through 8. Minneapolis, Minnesota, Educational Test Bureau.

Functional Evaluation in Mathematics. For grades 4–6, and 7–9. Minneapolis, Minnesota, Educational Test Bureau.

Iowa Every-Pupil Tests of Basic Skills: Basic Arithmetic Skills. For grades 3–5, and for grades 5–9. Boston, Houghton Mifflin Company.

Metropolitan Arithmetic Tests. For grades 3–4, 5–6, and 7–9. Yonkers-on-Hudson, New York, World Book Company.

Public School Achievement Test in Arithmetic Computation. For grades 3 to 8. Bloomington, Illinois, Public School Publishing Company.

Schorling-Clark-Potter Hundred Problem Arithmetic Test. For grades 7–12. Yonkers-on-Hudson, New York, World Book Company.

Woody-McCall Mixed Fundamentals in Arithmetic. Forms I, II, III, IV. For grades 2–9. New York, Bureau of Publications, Teachers College, Columbia University.

Diagnostic Tests in Arithmetic

Survey tests in arithmetic are useful in giving the grade level at which a pupil performs, or in furnishing information as to which of the fundamental processes (addition, subtraction, division, multiplication) causes him the most trouble. Such a test, for example, might show that a pupil is up to par in all processes except division. It would not, however, show which types of division problems he can do and which he cannot do. In like manner, a survey test might reveal a pupil to be particularly poor in fractions, yet fail to indicate which types of fractions cause him trouble. A given pupil might be able to add two fractions when the denominators are the same and yet be unable to do so when this condition does not prevail. Since

survey tests frequently do not probe deeply enough to show the particular error or errors that may be at the bottom of a pupil's difficulty in arithmetic, it is often highly desirable to use specially constructed diagnostic tests to furnish additional information.

Wood[9] cites the case of a pupil by the name of Paul who hated arithmetic because he was doing miserable work in it. It was believed that he was deficient in mathematical ability. However, when a number of diagnostic tests were administered to him it was found that his knowledge of the fundamental processes was good in all but a few particulars. Virtually all of his errors were caused by zero combinations, and by not knowing the multiplication combinations of 7 times 8, 6 times 4, 4 times 8, and 4 times 9. He consistently made the same errors whenever he met these combinations. For example, he always wrote 6 times 4 equals 25 and 7 times 8 equals 54. Once these few errors were discovered and pointed out to him, it was no time at all until he was doing satisfactory work in arithmetic. Teachers had worked with this boy for years and yet had not discovered the specific causes of his failure in arithmetic. With the aid of a few diagnostic tests in arithmetic it took the psychologist only an hour to locate his difficulties and to start him on the road to successful performance.

Diagnostic tests which will be found useful in dealing with pupils who are mathematically retarded are described in the next few pages.

Buswell-John Diagnostic Test for Fundamental Processes in Arithmetic.[10] This is an individual test, which provides the teacher with an insight into the specific errors which a pupil makes in arithmetic. The test consists of two sections—the *Pupil's Work Sheet* and the *Teacher's Diagnostic Chart.* The pupil's work sheet consists of a variety of problems in addition, subtraction, multiplication, and division, which the pupil works while thinking aloud. While the pupil proceeds, the teacher uses his diagnostic chart to keep a record of the child's specific errors and methods of work. The technique of

[9] Ernest R. Wood, "Subject Disabilities," Chapter 15 in *Educational Psychology,* edited by Skinner, New York, Prentice-Hall, Inc., 1951, pp. 492–495.

[10] Published by the Public School Publishing Company, Bloomington, Illinois

having the pupil "speak out" while working his problems is very important. Errors can be discovered in this way which would be entirely overlooked by a mere examination of the test after the pupil had completed it. Some pupils, for example, in doing a problem in addition, skip around the column in selecting numbers to be added rather than proceeding directly down the column taking each number as it comes. This defective work habit would be undetected unless the technique used in the Buswell-John test were employed.

The test is so designed as to check a great variety of possible errors. For example, in the section on addition the following types of errors can be detected: (1) errors in combinations, (2) errors due to counting, (3) errors due to adding carried number last, (4) errors due to forgetting to add carried number, (5) errors due to repeating the work after it has been partly done, (6) errors due to adding carried number irregularly, (7) errors due to writing down the number that is to be carried, (8) errors due to irregular procedure in the column, (9) errors due to carrying the wrong number, (10) errors due to grouping two or more numbers, (11) errors due to splitting numbers, (12) errors due to using wrong fundamental operation, (13) errors due to losing place in column, (14) errors caused by depending upon visualization, (15) errors due to disregarding column positions, (16) omitting one or more digits, (17) errors in reading numbers, (18) dropping back one or more tens, (19) deriving unknown combinations from familiar ones, (20) disregarding one column, (21) error in writing answer, (22) skipping one or more decades, (23) carrying when there is nothing to carry, (24) errors introduced through using scratch paper, (25) adding in pairs and giving the last sum as answer, (26) adding the same digit in two different columns, (27) writing the carried number in the answer, (28) adding the same number twice. A copy of page 1 of the *Teacher's Diagnostic Chart* is reproduced in Fig. 9.

Complete directions for making a diagnosis of the pupil's work in arithmetic are contained in the manual of directions, which also includes numerous specific examples of each of the types of errors

Teacher's Diagnosis for pupil _____

TEACHER'S DIAGNOSTIC CHART
FOR
INDIVIDUAL DIFFICULTIES
FUNDAMENTAL PROCESSES IN ARITHMETIC

Prepared by G. T. Buswell and Lenore John

Published by the Public School Publishing Co. Bloomington, Illinois Printed in U. S. A.

Name _____ School _____ Grade _____ Age _____ IQ _____

Date of Diagnosis: _____ Add. _____; Subt. _____; Mult. _____; Div. _____

Teacher's preliminary diagnosis _____

ADDITION: (Place a check before each habit observed in the pupil's work)

____ a1 Errors in combinations	____ a15 Disregarded column position
____ a2 Counting	____ a16 Omitted one or more digits
____ a3 Added carried number last	____ a17 Errors in reading numbers
____ a4 Forgot to add carried number	____ a18 Dropped back one or more tens
____ a5 Repeated work after partly done	____ a19 Derived unknown combination from familiar one
____ a6 Added carried number irregularly	____ a20 Disregarded one column
____ a7 Wrote number to be carried	____ a21 Error in writing answer
____ a8 Irregular procedure in column	____ a22 Skipped one or more decades
____ a9 Carried wrong number	____ a23 Carrying when there was nothing to carry
____ a10 Grouped two or more numbers	____ a24 Used scratch paper
____ a11 Splits numbers into parts	____ a25 Added in pairs, giving last sum as answer
____ a12 Used wrong fundamental operation	____ a26 Added same digit in two columns
____ a13 Lost place in column	____ a27 Wrote carried number in answer
____ a14 Depended on visualization	____ a28 Added same number twice

Habits not listed above _____

(Write observation notes on pupil's work in space opposite examples)

(1) 5 6 / 2 3		(5) 6 + 2 = 3 + 4 =	
(2) 2 8 / 9 4		(6) 52 40 / 13 39	
(3) 12 13 / 2 5		(7) 78 46 / 71 92	
(4) 19 17 / 2 9		(8) 3 8 / 5 7 / 8 9 / 2 7	

FIG. 9. SAMPLE PAGE OF THE BUSWELL-JOHN TEACHER'S DIAGNOSTIC CHART FOR INDIVIDUAL DIFFICULTIES IN THE FUNDAMENTAL PROCESSES OF ARITHMETIC

which pupils frequently make.[11] After a teacher has become skilled in the use of this test, it is possible in about 20 minutes time to discover the characteristic work habits and errors of most pupils.

The Wilson Inventory and Diagnostic Test in Arithmetic.[12] This series of diagnostic tests is designed to assist the teacher in locating the specific causes of the process difficulties which the pupil may have. The tests are as follows: Test AP, Addition; Test SP, Subtraction; Test MP, Multiplication; Test SDP, Short Division; Test LDP, Long Division; and Test A-3, Addition, Related Decade Facts to 39 plus 9. On the back of each of these tests a chart is provided for the analysis of errors. For addition, 24 different types of errors are listed; for subtraction, 30; for multiplication, 24; for short division, 27; and for long division, 43. Space is also provided on this analysis chart for listing additional errors which may be noticed. The test has no time limit and there are no grade norms. This is true of most diagnostic tests. The purpose is to find out what are the specific errors that pupils make, rather than to find out the grade levels at which they perform. The tests have been based upon average adult usage and are so simple that 100 per cent mastery is possible and desirable. Therefore the only acceptable standard or norm expected of pupils is 100 per cent accuracy with a reasonable degree of speed.

Brueckner Diagnostic Arithmetic Tests.[13] This diagnostic battery attempts to determine what mistakes pupils make and why they make them. There are tests dealing with whole numbers, fractions, and decimals. The diagnostic test in whole numbers provides an inventory of the various types of examples involved in the processes of addition, subtraction, multiplication, and division. One sheet is provided for each of the four fundamental processes. The test in fractions covers in a very thorough manner the mistakes that a pupil might possibly make. It contains 40 types of addition examples, 45 types of

[11] G. T. Buswell and Lenore John, *Manual of Directions for Use with Diagnostic Chart for Individual Difficulties in Fundamental Processes of Arithmetic,* Bloomington, Illinois, Public School Publishing Company.

[12] Published by the Palmer Company, 370 Atlantic Avenue, Boston, Massachusetts.

[13] Published by Educational Test Bureau, Minneapolis, Minnesota.

BRUECKNER DIAGNOSTIC TEST IN FRACTIONS

DIVISION

Name_____ Grade_____ Room_____

School_____ Date_____

Divide. Reduce all fractions in the answers to lowest terms.

Row	1	2	3	4	5
I	$5 \div \frac{1}{2} =$	$5 \div \frac{2}{3} =$	$12 \div \frac{3}{4} =$	$14 \div \frac{4}{5} =$	$2 \div \frac{4}{5} =$
II	$\frac{1}{7} \div \frac{1}{6} =$	$\frac{1}{9} \div \frac{1}{3} =$	$\frac{3}{8} \div \frac{3}{8} =$	$\frac{13}{15} \div \frac{1}{2} =$	$\frac{5}{6} \div \frac{3}{10} =$
III	$1\frac{1}{4} \div \frac{1}{3} =$	$1\frac{1}{2} \div \frac{1}{2} =$	$1\frac{3}{8} \div \frac{3}{10} =$	$2\frac{5}{8} \div \frac{3}{4} =$	$8 \div 5 =$
IV	$\frac{1}{5} \div 5 =$	$\frac{5}{6} \div 4 =$	$\frac{5}{9} \div 5 =$	$\frac{4}{5} \div 6 =$	$16 \div 6 =$
V	$1\frac{1}{3} \div 5 =$	$1\frac{1}{5} \div 4 =$	$5\frac{2}{3} \div 5 =$	$5\frac{3}{5} \div 2 =$	$1\frac{1}{5} \div 6 =$
VI	$\frac{1}{3} \div 1\frac{1}{2} =$	$\frac{3}{8} \div 1\frac{2}{3} =$	$\frac{5}{12} \div 1\frac{5}{6} =$	$\frac{1}{6} \div 1\frac{1}{2} =$	$10 \div 16 =$
VII	$2 \div 2\frac{1}{2} =$	$3 \div 4\frac{1}{2} =$	$5 \div 2\frac{3}{4} =$	$5 \div 2\frac{1}{2} =$	$12 \div 6\frac{3}{5} =$
VIII	$1\frac{1}{5} \div 3\frac{1}{2} =$	$1\frac{1}{3} \div 3\frac{1}{3} =$	$2\frac{3}{8} \div 2\frac{3}{8} =$	$3\frac{1}{3} \div 1\frac{3}{4} =$	$3\frac{3}{8} \div 1\frac{1}{4} =$

FIG. 10. BRUECKNER DIAGNOSTIC TEST IN DIVISION OF FRACTIONS

subtraction examples, 45 types of multiplication examples, and 40 types of division examples. A separate sheet is also provided for each of these four fundamental processes in fractions. The diagnostic test in decimals is similarly constructed. Each of the examples contains a specific decimal difficulty. Diagnostic tabulation sheets assist the teacher in interpreting the data and in outlining suitable remedial work. The test in division of fractions is shown in Fig. 10.

Compass Diagnostic Tests in Arithmetic.[14] This diagnostic battery consists of 20 tests as follows: Test I: Addition of Whole Numbers; Test II: Subtraction of Whole Numbers; Test III: Multiplication of Whole Numbers; Test IV: Division of Whole Numbers; Test V: Addition of Fractions and Mixed Numbers; Test VI: Subtraction of Fractions and Mixed Numbers; Test VII: Multiplication of Fractions and Mixed Numbers; Test VIII: Division of Fractions and Mixed Numbers; Test IX: Addition, Subtraction, and Multiplication of Decimals; Test X: Division of Decimals; Test XI: Addition and Subtraction of Denominate Numbers; Test XII: Multiplication and Division of Denominate Numbers; Test XIII: Mensuration; Test XIV: The Basic Facts of Percentage; Test XV: Interest and Business Forms; Test XVI: Definitions, Rules, and Vocabulary of Arithmetic; Test XVII: Problem Analysis: Elementary; Test XVIII: Problems Analysis: Advanced; Test XIX: General Problem Scale: Elementary; Test XX: General Problem Scale: Advanced. Each of these 20 tests is still further subdivided. For example, Test IV: Division of Whole Numbers, is made up of the following seven parts: Part 1, the vocabulary of division; Part 2, the fundamentals of short division; Part 3, short division with carrying; Part 4, multiplication, addition, and subtraction used in the division in parts 2, 3, 5, 6, and 7; Part 5, estimating the first quotient figure; Part 6, fundamentals of long division, checking; Part 7, finding errors in long division. It is, of course, not expected that all of these tests will be given to any given pupil or in any given school. The teacher should select those specific tests which seem appropriate for the problem at hand. This battery of tests differs from other diagnostic tests in that grade norms are provided for the vari-

[14] Published by Scott, Foresman and Company, Chicago, Illinois.

ous parts. In this respect, the Compass Tests resemble the survey type of test. However, the teacher will find this series of tests to be useful for diagnostic purposes in that it will point out the particular process in which the pupil is weak. The teacher can use this as a starting point for finding out why the pupil falls down in a given phase of arithmetic.

McDade Inventory Tests on the Number Facts. This excellent set of tests covers, respectively, the 100 addition facts, the 100 subtraction facts, the 100 multiplication facts, and the 90 division facts.[15] Separate perforated cardboard folders are provided for each of the four fundamental processes. A sheet of paper is inserted into the folder, and the pupil writes his name, the date, and his answers in the spaces provided for that purpose. As soon as he has completed his work, this sheet of paper is withdrawn from the folder and is placed in a scoring key where it is corrected. Errors in the basic combinations of arithmetic are thus clearly identified. The tests are very inexpensive because they can be used over and over again. The folder which is used in testing competence on the 100 multiplication facts is reproduced in Fig. 11.

Causes of Difficulty in Arithmetic

Many individuals wonder why it is that some pupils in the upper grades and the junior and senior high school have never mastered the fundamentals of arithmetic. What causes are operative to create this condition? The answer is that there are many causes. The causes are virtually as numerous as are the pupils needing help. Hence a careful diagnosis should be made of each pupil who is having trouble with arithmetic in order that the specific casual factors in his particular case may be uncovered.

The diagnosis should make a thorough appraisal of the pupil's physical condition, his visual and auditory equipment, his achievement in other school subjects, his general mental ability, his home conditions, his attitudes and interests, his work habits, and specific

[15] Published by the Plymouth Press, 2921 W. 63rd St., Chicago, Illinois.

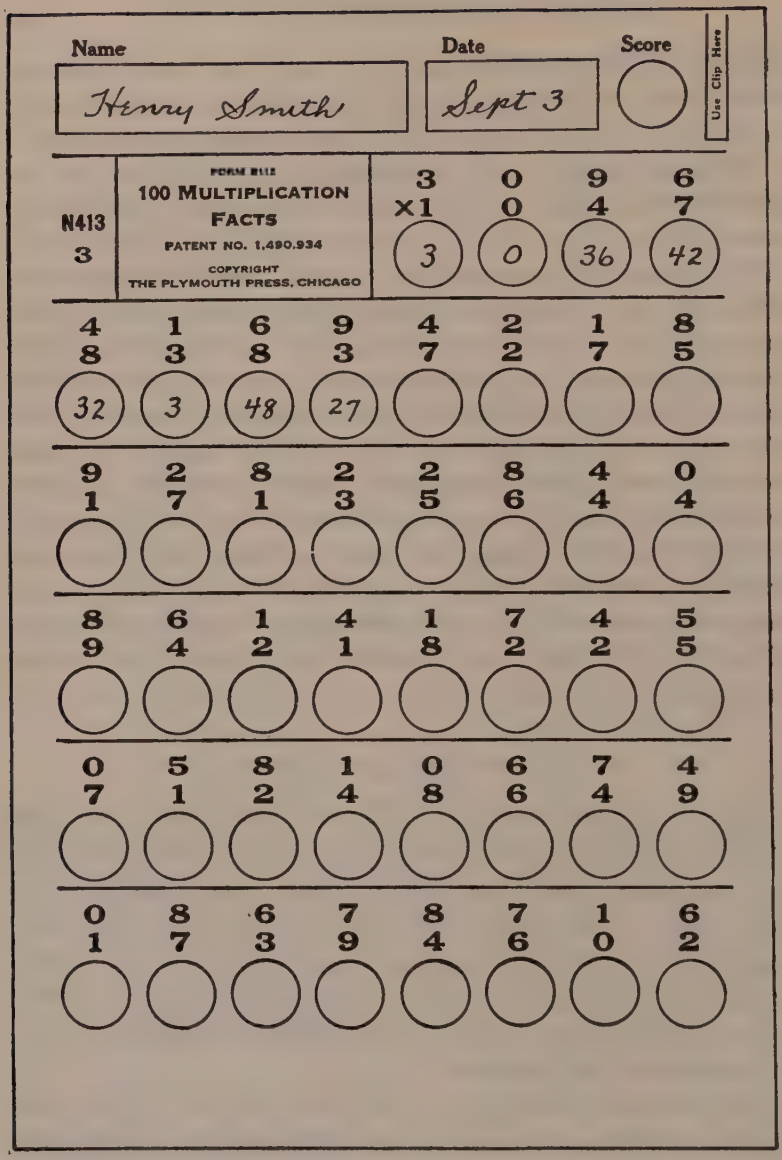

FIG. 11. MCDADE INVENTORY TEST OF THE 100 MULTIPLICATION FACTS (THE REMAINDER OF THE 100 FACTS ARE ON THE REVERSE SIDE OF THE FOLDER AND ARE NOT VISIBLE IN THIS REPRODUCTION)

TABLE XVII

Ineffective Work Habits and Errors Exhibited by 106 Eighth-Grade Pupils

(*Adapted from Buswell and John*)

HABIT OR ERROR	FREQUENCY
Addition:	
Errors in combinations	94
Added carried number last	76
Added carried number irregularly	55
Irregular procedure in column	50
Grouped two or more numbers	43
Retraced work after partly done	32
Carried wrong number	30
Split numbers	27
Dropped back one or more tens	22
Forgot to add carried number	19
Subtraction:	
Errors in combinations	63
Did not allow for having borrowed	48
Error in reading	35
Deducted from minuend when borrowing was not necessary	19
Said example backward	18
Deducted 2 from minuend after borrowing	12
Counting	10
Error due to minuend and subtrahend digits being same	6
Used minuend or subtrahend as remainder	6
Derived unknown from known combination	5
Multiplication:	
Error in adding the carried number	69
Used multiplicand as multiplier	56
Errors in multiplication combinations	46
Carried a wrong number	44
Wrote rows of zeros	43
Errors in addition	42
Error in single zero combinations, zero as multiplier	42
Errors in reading	35
Forgot to carry	27
Error in position of partial products	23
Division:	
Errors in subtraction	79
Errors in multiplication	79
Found quotient by trial multiplication	57
Used long-division form for short division	52
Errors in division combinations	41
Omitted digit in dividend	38
Omitted final remainder	30
Used remainder larger than divisor	29
Used short-division form for long division	29
Omitted zero resulting from another digit	27

error patterns. Only by taking all possible background and personal factors into consideration as well as specific difficulties in arithmetic is it possible to form an accurate judgment of the cause of a pupil's disability. Chapter 13 entitled "Making Case Studies" includes an outline which should be used in diagnosing difficulties in any subject. This should be consulted in order to secure an insight into general methods of diagnosis. Chapter 3 entitled "Determining the Cause of the Reading Disability" also presents useful related material which should be read by the teacher who is interested in diagnosing the causes of difficulty in arithmetic.

Work Habits and Specific Error Patterns

Ineffective habits of work and specific errors of which the pupil is unaware lie at the bottom of much trouble in arithmetic. A good diagnostic test in arithmetic such as those which have previously been described should enable the teacher to identify those specific weaknesses which the pupil may possess. The diagnostic test should be administered individually whenever possible. The Buswell-John test is always used as an individual test and the other diagnostic tests can be so used. Regardless of which test is employed, it is important that the teacher have the pupil do his work "out loud" so that an insight may be gained into his exact methods of work.

The types of ineffective work habits pupils employ and the errors they make have been studied by several investigators. In one investigation,[16] the Buswell-John test was given to 106 eighth-grade pupils who were not promoted to high school because of difficulties in arithmetic. The ten most frequent errors made by this group in the addition, subtraction, multiplication, and division sections of the test are listed in Table XVII. The table should be read as follows: Of the 106 pupils, 94 made errors in combinations; 76 added the carried number last; 55 added carried number irregularly; 50 exhibited irregular procedure in the column, and so on. The average chronological age of this group of pupils was 14.48 and the average IQ was 104. The fact

[16] G. T. Buswell and Lenore John, *Diagnostic Studies in Arithmetic*, The University of Chicago, Chicago, Illinois, 1926, pp. 150–153.

that pupils of average mental ability should possess so many defective work habits and make so many errors in the four fundamental processes of arithmetic is little short of amazing. Such results are indicative of very poor teaching and poor learning. Studies are in existence which show that pupils of junior-high-school age of average mental ability can attain 100 per cent accuracy in the fundamental operations when careful diagnostic and remedial teaching is carried out.[17]

Brueckner[18] administered his *Diagnostic Test in Fractions* to 400 sixth-grade pupils and made an analysis of the most frequent types of errors. In Table XVIII are presented his data for the sheet of the test dealing with division of fractions. It is seen that approximately one-third of all mistakes in division of fractions are due to the pupil's neglect to invert the divisor before performing the process of multiplication. Simple computational errors are the second most frequent cause of difficulties. Such a table is useful in indicating the types of errors pupils make and as such provides the teacher with a list of weaknesses to be looked for. Table XVIII plus Brueckner's analysis of difficulties in addition, subtraction, and multiplication of fractions,[19]

TABLE XVIII

An Analysis of Difficulties in Division of Fractions
(*From Brueckner*)

	6B	6A	TOTAL	%
I. Wrong Operation: Multiplication $1\frac{3}{8} \div 1\frac{2}{3} = 1\frac{1}{8} \times \frac{5}{3} = \frac{55}{24}$ or $2\frac{7}{24}$	723	795	1518	31.1
II. Computation Errors	309	365	674	13.8
(a) Division: $3\frac{3}{8} \div 1\frac{3}{4} = 27/\cancel{8} \times \cancel{4}/7 =$ $27/14 = 13/14$ $\quad 2$	255	223	478	
(b) Multiplication: $1\frac{1}{6} \div 3\frac{1}{2} = \frac{7}{6} \times \frac{2}{7} =$ $\frac{12}{30}$ or $\frac{2}{5}$	98	78	176	
(c) Unknown: $3\frac{1}{3} \div 1\frac{3}{4} = 1\frac{1}{3} \times \frac{4}{7} = 3\frac{1}{21}$	12	8	20	

[17] Joseph H. Randall, "Corrective Arithmetic in Junior High School," *Educational Method*, Vol. 16, January, 1937, pp. 182–185.

[18] *Brueckner Diagnostic Test in Fractions: Manual of Directions*, Revised, Minneapolis, Educational Test Bureau, 1930, 1943.

[19] *Ibid.*

TABLE XVIII (*Continued*)

III. Lack of Comprehension of Process Involved	219	371	590	12.1
(a) Inverts dividend: $1\frac{1}{6} \div 3\frac{1}{2} = \frac{6}{6} \times \frac{7}{2} = 3\frac{5}{12}$ or $2\frac{11}{12}$	43	201	244	
(b) Inverts both dividend and divisor: $1\frac{3}{8} \div 1\frac{2}{3} = \frac{8}{11} \times \frac{3}{5} = \frac{24}{55}$	50	38	88	
(c) Adds denominators and multiplies numerators: $1\frac{3}{8} \div 1\frac{2}{3} = 1\frac{1}{8} \times \frac{3}{5} = 3\frac{3}{13}$ or $2\frac{7}{13}$	43	52	95	
(d) Adds numerators and multiplies denominators: $1\frac{1}{6} \div 3\frac{1}{2} = \frac{6}{6} \times \frac{2}{7} = \frac{8}{35}$	27	18	45	
(e) Disregards denominator in quotient: $3\frac{1}{8} \div 1\frac{1}{4} = 2\overset{5}{\cancel{5}}/\cancel{8} \times \cancel{4}/\underset{2}{\cancel{5}} = 5$	47	45	92	
(f) Disregards numerator: $\frac{1}{6} \div \frac{1}{3} = 1/\cancel{2} \times \cancel{3}/1 = 3$	9	17	26	
IV. Difficulty in Reducing Fractions to the Lowest Terms	259	177	436	8.9
(a) Does not reduce: $1\frac{1}{3} \div 3\frac{1}{3} = 4/\cancel{5} \times \cancel{5}/10 = \frac{4}{10}$	223	150	373	
(b) Divides denominator by numerator: $1\frac{3}{8} \div 1\frac{2}{3} = 1\frac{1}{8} \times \frac{3}{5} = \frac{33}{40}$ or $1\frac{7}{33}$	36	27	63	
V. Difficulty in Changing Mixed Numbers to Improper Fractions $3\frac{1}{8} \div 1\frac{3}{4} = 1\overset{5}{\cancel{0}}/3 \times 4/\underset{6}{\cancel{2}} = \frac{20}{18}$ or $1\frac{1}{9}$	220	201	421	8.6
VI. Omitted	192	214	406	8.3
VII. Failure to Reduce Improper Fractions to Mixed Numbers $3\frac{1}{8} \div 1\frac{1}{4} = 2\overset{5}{\cancel{5}}/\cancel{8} \times \cancel{4}/\underset{2}{\cancel{5}} = 5\frac{1}{2}$	223	126	349	7.1
VIII. Errors in Copying $1\frac{1}{4} \div \frac{1}{3} = 5\frac{1}{2} \times \frac{3}{1} = 15\frac{1}{2}$ or $7\frac{1}{2}$	61	52	113	2.3
IX. Cancellation Difficulties	11	63	74	1.5
(a) Cancels within the denominators: $\frac{5}{6} \div 4 = 5/\cancel{6} \times 1/\underset{2}{\cancel{4}} = \frac{5}{8}$	2	9	11	
(b) Cancels within the numerators: $1\frac{1}{6} \div 3\frac{1}{2} = \overset{3}{\cancel{6}}/5 \times \cancel{7}/7 = \frac{3}{35}$	5	14	19	
(c) Where complete cancellation, the quotient is called zero: $4\frac{1}{2} \div 4\frac{1}{2} = \frac{9}{2} \times \frac{2}{9} = 0$	4	40	44	
X. Unknown: $1\frac{1}{3} \div 3\frac{1}{3} = \frac{1}{5}$	75	219	294	6.
	2348	2527	4875	99.7

would provide the teacher with a list of the major mistakes pupils make in fractions. Such tables and analyses do not, however, show the specific errors any given pupil may make. These must be uncovered through a careful and systematic plan of individual diagnosis.

TABLE XIX

Errors Made by Sixth-, Seventh-, and Eighth-Grade Pupils in the Addition, Subtraction, Multiplication, and Division of Decimals

(*Adapted from Brueckner*)

DIFFICULTY	FREQUENCY OF ERROR
Addition of decimals:	
Errors in placing decimal point	275
Weakness in number combinations	128
Misplacing whole numbers	34
Carrying difficulties	31
Inability to add fractions and decimals	23
Subtraction of decimals:	
Borrowing difficulties	221
Misplacing decimal number in subtrahend	74
Weakness in subtraction facts	50
Confuses subtraction with additions	45
Decimal point omitted	17
Multiplication of decimals:	
Misplacing decimal point	631
Errors in multiplication	365
Omitting decimal point	119
Failure to prefix zero	87
Inability to multiply decimal and fraction	62
Division of decimals:	
Decimal point misplaced	1436
Errors in division	376
Decimal point omitted	356
Failure to reduce remainder to decimal	172
Failure to prefix zero in quotient	163

The analysis in Table XVIII was based entirely upon an examination of the pupils' papers after they had been tested in a group. Consequently, the causes of some of the errors which were found could not be ascertained. This is shown in sections IIc and X of Table XVIII. Under the caption "Unknown" of Section X, is grouped 6 per cent of

all the errors sixth-grade pupils make in the division of fractions. When one has only a pupil's completed paper to study it is extremely difficult if not impossible to determine what processes he may have employed in securing an answer of $\frac{1}{5}$ for such a problem as $1\frac{1}{3}$ divided by $3\frac{1}{3}$. Hence it is of the greatest importance that pupils who exhibit marked deficiencies on a group test of the Brueckner type be given a supplementary individual examination. This can be done by having the pupil work individually, in the presence of the teacher, those examples which caused him trouble on the group test. He should, of course, do his thinking aloud so that ineffective mental processes and habits of work will be revealed.

Brueckner[20] has also analyzed the types of errors pupils make in dealing with decimals. His *Diagnostic Test in Decimals* was first given to more than 500 pupils enrolled in grades 6, 7, and 8 and a tabulation was then made of the mistakes they committed. Altogether 114 different kinds of errors were isolated. Errors were more numerous in multiplication and division than in addition and subtraction. The five most frequent errors found in the addition, subtraction, multiplication and division of decimals are listed in Table XIX. A glance at this table reveals the fact that most of the difficulty pupils experience with decimals is due to ineffectiveness in handling the four fundamental operations with whole numbers and in properly placing the decimal point. This is an important fact for teachers to keep in mind. Once the pupil has mastered the processes of addition, subtraction, multiplication, and division of whole numbers, he needs just one additional ability to succeed with decimal fractions—the ability to insert the decimal point. In learning or acquiring this new ability, the pupil commits two errors: (1) misplacing the decimal point, and (2) omitting the decimal point. It is obvious, therefore, that remedial work in decimals is largely a matter of assisting pupils to avoid these two errors, and of teaching them to add, subtract, multiply, and divide whole numbers.

[20] L. J. Brueckner, *Brueckner Diagnostic Test in Decimals: Manual of Directions*, Minneapolis, Educational Test Bureau, pp. 5–9.

Remedial Exercises and Materials

The remedial teaching which follows the diagnosis of individual difficulties should, of course, be geared to weaknesses that have been found in the pupil's processes and habits of work. It should also take into account the needs and goals of the pupil. It should be more than mere drill upon processes and combinations that have not been mastered. Drill or practice is necessary, but this should be highly stimulating and related to the life-career motives of the pupil wherever possible. Success must accompany the work if rapid learning is to take place. Pupils should be kept informed of the progress they are making, and new procedures and devices should be introduced into the instruction from time to time to keep monotony from setting in.

The teacher who is to make an outstanding success of remedial work in arithmetic must be well equipped not only with the best psychological procedures, but should in addition have at hand a wealth of appropriate remedial exercises and materials.

Exercise Books

Review Arithmetic (Textbook 1). This little textbook[21] contains practice materials in the areas of addition, subtraction, multiplication, division, and fractions. It was prepared originally for use in the remedial teaching of arithmetic in the armed forces of the United States. The materials, however, are excellently suited for use in remedial arithmetic classes in schools. The book is organized in such a way that the pupil can identify his own weaknesses and carry out the remedial work with a minimum of assistance from the teacher.

Remedial Arithmetic for High School Pupils.[22] This course in remedial arithmetic consists of tests, practice materials for the pupil, and a teacher's manual. The test booklet contains four tests of approximately equal difficulty for each division of work which is

[21] Published by Ginn and Company, Boston.

[22] Allan R. Congdon and Ronald B. Thompson, *Remedial Arithmetic for High School Pupils,* Lincoln, Nebraska, The University of Nebraska.

covered. These are used for pretesting and for retesting. The general procedure calls for the administration of a test first. If no more than one error is made, the pupil proceeds to a test dealing with another topic. If, however, a pupil has trouble with the pretest, he works on the practice exercises provided in the booklet entitled "Material for the Pupil" which covers material of the type involved in the test. After the practice exercises have been completed a second test is administered to note what progress has been made. If the pupil succeeds in passing this second test he goes on to the pretest for a new division of work. If he does not make a 90 per cent correct score, he works on "New Practice Material" provided in the manual. After completing this work he is given a third test. If he passes this he goes on to new work, otherwise additional practice exercises are provided him. At the completion of the practice exercises a fourth test is administered. Only when a pupil shows mastery of a given unit is he allowed to progress to another unit of work with its tests and practice materials.

The practice material for the pupil consists of addition, subtraction, multiplication, and division of whole numbers; decimals; fractions and mixed numbers; problem solving; denominate numbers; mensuration; percentage; word problems involving denominate numbers; mensuration and per cent; interest and business forms; and graphs. The practice material is of such a nature that adequate exercises are provided for the most retarded pupils. For example, the section on addition begins with the 100 primary addition facts, the section on subtraction provides practice on the 100 subtraction facts, the section on multiplication includes the 100 multiplication facts and the section on division provides drill on the 90 division facts.

One outstanding advantage of this remedial series in arithmetic is that it is labeled "Arithmetic for High School Pupils" and has been designed particularly for that group. High-school pupils are frequently sensitive about studying materials which have been prepared for younger pupils. Much of the material in the pupil's manual is at the second-, third-, and fourth-grade levels yet the fact that the book is labeled "for high school pupils" makes it seem worthy of their at-

tention and study. This is a psychological point of great importance in remedial teaching.

The Wilson 100% Arithmetic Drill Books.[23] There are four drill books in this series, as follows: *My Addition Drill Book, My Subtraction Drill Book, My Multiplication and Short Division Drill Book,* and *My Long Division Drill Book.* These books are scientifically constructed and have for their purpose the development of 100 per cent accuracy in the fundamentals of arithmetic. The pupils are taken step by step through the various processes and the amount of drill provided is in proportion to the difficulty of the arithmetic process involved.

My Addition Drill Book covers the 100 primary, or first-decade, facts; the 300 upper-decade facts through 39 plus 9, and the 80 additional higher-decade facts needed for carrying on multiplication through 9 times 9. *My Subtraction Drill Book* provides the pupil with exercises designed to secure mastery of the 100 primary subtraction facts, and the 175 upper-decade facts needed for subtraction in uneven short division through 89 divided by 9. *My Multiplication and Short Division Drill Book* teaches the facts of multiplication through 9 times 9, the 90 even short-division facts and the 368 uneven division facts. *My Long Division Drill Book* provides a teaching plan and gives drill in this phase of arithmetic.

Since the purpose of the Wilson drill books is to provide 100 per cent mastery of the most used arithmetic fundamentals, only the most basic processes and combinations are included.

Lennes Test and Practice Sheets in Arithmetic.[24] There are eight practice pads in this series. Pad number one deals with extremely simple arithmetic calculations, pad number two contains somewhat more difficult material than number one, and each succeeding pad represents a slight advance in difficulty over the previous ones. Pad number eight, which is the most difficult of all, covers such topics as addition and subtraction, multiplication, division, percentage, fractions, mixed fundamentals, as well as more advanced arithmetic

[23] Published by The Macmillan Company, New York.
[24] Published by Laidlaw Brothers, Inc., Chicago.

dealing with bank discounts, installment buying, and taxes. Grade labels are not given on these exercise books. The pad numbers, however, give some clues as to the difficulty of the various books.

Learning to Compute.[25] This series of two workbooks in arithmetic is especially designed for diagnostic and remedial work, and is excellently suited for use in junior or senior high schools. No grade labels are attached to the books. The diagnostic procedure is so arranged that each pupil will discover his own specific weaknesses. Book One covers addition, multiplication, subtraction, division, common fractions, and decimals; Book Two reviews the fundamentals dealt with in Book One and continues with such additional topics as per cents, units of measure, ratio, and arithmetic in business. Diagnosis is made possible first by use of survey tests which precede each topic or subtopic. If the pupil does well on the survey test, he omits the practice work of that topic. On the other hand, if he falls below standard, his difficulty is further analyzed by means of inventory tests which detect specific errors and weaknesses. When these are discovered, the pupil is automatically referred to a specific section of the workbook which provides remedial practice to correct the difficulties. All of the tests, the remedial materials, improvement records, and answers are contained under one cover.

Self-Help Arithmetic Workbooks.[26] This set of arithmetic workbooks has the following useful features:

1. Fifteen self-testing drills in each book, which assist in diagnosing pupil weaknesses.
2. A self-help chart which shows the pupil and teacher what remedial work is necessary.
3. A block of remedial exercises to correspond with every example in the self-testing drills.
4. An individual progress chart which serves to motivate the work.

A separate workbook is published for each of the following grade

[25] Raleigh Schorling, John R. Clark, Mary A. Potter, and Carroll F. Deady, *Learning to Compute,* Yonkers-on-Hudson, New York, World Book Company.

[26] F. B. Knight, J. W. Studebaker, and Gladys Tate, *Self-Help Arithmetic Workbooks,* Chicago, Scott, Foresman and Company.

levels—three, four, five, six, seven, and eight. The books for grade 7 and 8 are also printed with the title *Self-Help Mathematics Workbooks,* Books One and Two. This makes them more appealing to pupils of secondary-school age.

The McDade Individual Number Drills. This material provides exercise on the 390 number facts in the fundamental processes.[27] A special feature is a self-help folder which makes it possible for the pupil to learn the combinations himself without immediate supervision. The folder is so constructed that the answer to a given problem is brought into view as soon as the pupil completes it. When the McDade Inventory Test, which was described earlier, has been administered to a pupil, the teacher knows definitely which combinations the pupil has mastered and which he has not. This practice material is designed to provide appropriate remedial instruction. The scoring key for the inventory test tells the teacher which of the number drills to have the pupil use in correcting any specific combination deficiency.

Remedial Arithmetic Experiments in the Grades and the Junior High School

Remedial work in arithmetic based upon a careful diagnosis of pupil errors usually pays big dividends in terms of the improvement made. This is true when the work is applied to one case at a time or to whole classes which are deficient in arithmetic ability. Individual pupils have been known to improve as much as four or five grades as the result of one semester's work, and the arithmetic levels of whole classes have been raised as much as two grades in this same length of time. Examples of what can be accomplished through remedial instruction in arithmetic are provided in the next few paragraphs.

Eighth Grade, Junior High School, Quincy, Illinois.[28] On the basis

[27] Published by the Plymouth Press, 2921 W. 63rd St., Chicago, Illinois. The units most applicable for remedial work are as follows: Addition RXA, Subtraction RXS, Multiplication RXM, and Division RXD.

[28] This unpublished study was carried out by Mr. R. E. Buskirk, one of the writer's students.

of the results of the *Progressive Arithmetic Test—Intermediate, Form A,* and the *California Test of Mental Maturity,* a class in remedial arithmetic consisting of twenty-three pupils was formed. The average arithmetic grade of this group of eighth graders was found to be 4.9 and the average IQ was 79. The purpose of the project was to determine the value of a remedial arithmetic course when given to a group of pupils with less than average mental ability. The experiment lasted one semester.

During the course, each pupil was considered an individual problem and was given the specific help he needed. Group methods of instruction were employed only at those times when it was found that several pupils possessed difficulties of the same nature. Drill on fundamental operations and problem solving ranged all the way from the simplest combinations with whole numbers, fractions, and decimals, to problems involving simple percentage, discount, commissions, and areas of plane figures.

The material used in the drill work was the loose-leaf *Strathmore Plan, Test-Teach-Practice Test* by Schuer, Murdock, and Freeman,[29] and *Learning to Compute* by Schorling, Clark and Potter.[30]

After a semester's work was completed, the twenty-three pupils were tested again. This time, the *Progressive Arithmetic Test—Intermediate, Form B* was used. The results showed that the entire class made a gain in arithmetic of 1.8 grades. The greatest gain made by any one pupil was 4.9 grades. This was accomplished by a boy with an IQ of 107 (the highest IQ in the group). He increased his proficiency during the semester from a grade level of 4.2 to the respectable level of 9.1. No pupil showed a loss in ability as measured by the second test.

The teacher of the class made the following report with respect to one of the pupils in the course:

> William, whose IQ was 72, was perhaps my greatest problem in the class. He could not add even the simplest numbers. One day I told him that 4 and 4 are 8, but the next day he had forgotten this fact. A test of the 100

[29] Published by the Strathmore Company, Aurora, Illinois.
[30] Published by the World Book Company, Yonkers-on-Hudson, New York.

PLATE 15. It is Important for the Teacher to Talk Privately and Confidentially to the Pupil Who Is Having Trouble with His Schoolwork to Get His Slant on His Difficulty

PLATE 16. A Psychologist Administering a Personality Test to a Pupil

addition, subtraction, and multiplication facts was given him. This revealed that he knew only 20 per cent of the addition facts, 19 per cent of the subtraction facts, and 21 per cent of the multiplication facts. I spent much time showing him various combinations with pencils, books, and other objects in the room. He finally learned and retained a few simple combinations. Sometimes I would detain him for a few minutes and show him flash cards. Gradually he learned quite a few sums. I made out a simple adding test on which I felt sure he could make 100 per cent. He worked them all correctly and I praised him in front of the class. This won him. He asked for outside drill work, which I supplied him. Sums of a greater difficulty were given him until he was able to add five or six four-place numbers with a great deal of skill and accuracy.

Similar methods of procedure were used in subtraction and multiplication. At the end of the semester he was beginning to show much improvement in these processes also. During the last week of the semester, I gave William the same test of the combination facts that I had given him earlier. His score this time was raised to 100 per cent in addition, 87 per cent in subtraction, and 62 per cent in multiplication.

William developed in one semester from a boy who would not try into one who was willing and anxious to do the simple arithmetic of which he was capable.

North Junior High School, Quincy, Massachusetts.[31] The purpose of this experiment was to determine how long it would take pupils of good mental ability who were deficient in addition skills to overcome their difficulties. Two hundred eighth-grade pupils in this school were administered the *Wilson 3P-Addition Test.* Forty-nine pupils with IQs above 100 were found who gave evidence of weakness in the fundamentals of addition. This group was then further tested by means of a test covering the 100 primary facts of addition and also by one covering the upper decade facts through 39 plus 9. On the basis of these results, eight pupils who were extremely poor in addition were selected for remedial work.

The remedial program consisted of both general and individualized drill which was well motivated. Among other things, each pupil completed the exercises in Wilson's *My Addition Drill Book.* Further individualized drill assignments were made on the basis of five diag-

[31] Joseph H. Randall, "Corrective Arithmetic in Junior High School," *Educational Method,* Vol. 16, January, 1937, pp. 182–185.

nostic tests which were given the pupils. Some of this work was written and some was done orally. For oral drill, small flash cards were used. Each of these contained a single addition combination which had proved troublesome to a given pupil. The general procedure when using flash cards was to have the pupils pair off and drill each other. Throughout the experiment a careful record was kept of all time spent upon the remedial work both inside and outside the classroom.

At the end of the experiment, the *Wilson 3P-Addition Test* was again administered. This time every pupil made an accuracy score of 100 per cent. Furthermore the average time required to do the work was less than half that required for the initial testing. In producing this result the median total amount of time devoted to remedial work was 884 minutes (14.7 hours).

The one who conducted this study drew several conclusions among which are the following:

1. Remedial work in arithmetic, based on the limitations and conditions of the "100 per cent plan," should be scheduled as an elective in all curriculums of junior high schools, and pupils of average or better than average intelligence, who indicate weakness in arithmetic fundamentals, should be encouraged through guidance to take this work. (He also states that all junior-high-school pupils who need it should have corrective work.)
2. In order to lessen the corrective load in junior high school, and to ensure that pupils who leave school at the minimum allowable age shall be equipped for a useful life, the arithmetic required of all pupils at any level should limit drill material to the essential facts and processes which, as research has already demonstrated, meet the demands of common business and social usage.

Franklin Township Centralized School, Darke County, Ohio.[32] In this school an experiment involving remedial work in fractions was carried on over a period of 24 weeks. Forty-five minutes each week were devoted to the work.

The first step in the project was to locate those pupils who were

[32] Walter S. Guiler, "Improving Ability in Fractions," *Mathematics Teacher*, Vol. 29, May, 1936, pp. 232–240.

inefficient in dealing with fractions. This was accomplished by administering to the 88 pupils enrolled in grades 6, 7, and 8 the *Guiler-Christofferson Diagnostic Survey Test in Computational Arithmetic, Form 1.* The test results showed that 58 pupils fell below the standards for their respective grades in ability to use fractions. These were the pupils who received remedial instruction. The average IQ of these 58 pupils was 90 with a range extending from 70 up to 121.

The next phase of the work was devoted to diagnosing specific weaknesses of the group as well as of each pupil. For this purpose the *Guiler-Christofferson Diagnostic Test in Fractions, Form 1,* was used and diagnostic charts were made which showed both group and individual weaknesses. One of the eighth-grade pupils, for example, was weak in the following abilities:

1. Recognition of the meaning of terms.
2. Changing a fraction to an equivalent fraction having a given denominator.
3. Changing a mixed number to an improper fraction.
4. Adding fractions and mixed numbers with unlike denominators, the least common denominator being one of the given denominators (no carrying).
5. Adding fractions and mixed numbers with unlike denominators, the least common denominator being the product of the given denominators (no carrying).
6. Adding fractions and mixed numbers with unlike denominators, the least common denominator being less than the product of the given denominators (no carrying).
7. Adding two or more fractions or mixed numbers (carrying).
8. Subtracting fractions and mixed numbers with like denominators (no borrowing).
9. Subtracting fractions and mixed numbers with like denominators (no borrowing).
10. Subtracting fractions and mixed numbers with unlike denominators, the least common denominator being the product of the given denominators (no borrowing).
11. Subtracting fractions and mixed numbers with unlike denominators, the least common denominator being less than the product of the given denominators (no borrowing).
12. Subtracting fractions and mixed numbers (borrowing).

13. Multiplying a fraction by a fraction.
14. Multiplying three or more fractions or mixed numbers when cancellation is used.
15. Dividing an integer by a fraction.
16. Dividing a fraction or a mixed number by a fraction.
17. Dividing an integer by a mixed number.
18. Dividing a fraction or a mixed number by a mixed number.

This pupil showed weaknesses in 18 out of the 25 abilities which the test measures. The poorest eighth-grade pupil manifested 20 weaknesses while the best one of the eighth-grade remedial group exhibited only five.

Following this diagnostic process, remedial instruction was initiated. This consisted of individualized group instruction with all grade lines being disregarded. When it was found that most of the pupils possessed a given weakness, group instruction was employed. When a limited number of pupils were deficient in a given ability, special work was provided for them alone. For practice material, *A Mastery Work-Book in Fractions*[33] was extensively used, the exercises being so organized that each pupil secured practice on the abilities in which he was deficient.

The last step in the experiment consisted in evaluating the results that had been achieved. For this purpose Form 2 of the *Guiler-Christofferson Diagnostic Test in Fractions* was used. The maximum possible score on this test is 50. The data show that the pupils made an average score of 28.4 before receiving remedial instruction, and a score of 40.7 at the conclusion of the experiment.

This experiment clearly indicates that marked improvement in ability to use fractions may be expected when remedial instruction is based upon a careful analysis of each pupil's weaknesses. Perfection was not achieved by the group as a whole but it must be remembered that the actual time devoted to the remedial work did not exceed 18 hours. It is also possible that some of the processes which were drilled upon are not sufficiently used in business or in social life

[33] Published by F. A. Davis Company, Philadelphia.

to warrant the development of 100 per cent accuracy on the part of the pupils.

In general, it is better to select a few of the most used types of fractions and work on them until 100 per cent mastery is attained, rather than to spread the effort in such a way that none is completely mastered.

Arithmetic Programs in Senior High Schools

Information regarding remedial arithmetic programs in senior high schools was secured in connection with a nation-wide survey of remedial teaching which was conducted by the writer. One hundred-sixty-six of the schools involved in the study described their work in remedial arithmetic. An analysis of the data indicates that this activity is generally handled in one or more of the following ways: (1) remedial arithmetic classes, (2) special curriculums for pupils of low mental ability, (3) general mathematics classes, (4) special arithmetic classes for high-school seniors, (5) courses in commercial arithmetic, business arithmetic, shop arithmetic, (6) teachers in regular classes.

In the next few paragraphs the various methods and procedures used will be described in more detail, and specific illustrations from school practice will be presented.[34]

Remedial Arithmetic Classes

Of the various plans in use for caring for pupils deficient in the fundamentals of arithmetic, those labeled "remedial arithmetic classes" are among the most common. In many cases, pupils are selected for these classes at the time they enter high school and in some cases before that time. Scores on arithmetic tests often serve as the basis for admitting pupils to the classes. Grades made in arithmetic in the elementary school and the opinions of the elementary-school teachers are also frequently considered.

Practice varies as to the length of time pupils remain in remedial

[34] The descriptions in this section are taken from Glenn Myers Blair, "Remedial Arithmetic in Senior High Schools." *The Mathematics Teacher,* Vol. 36, December, 1943, pp. 346–350.

arithmetic classes. Many schools require attendance for a full semester or a year, while others expect the pupils to attend only a few weeks or until such time as they show sufficient improvement to enter the regular classes. Some schools admit pupils to the regular algebra classes, and then after a test period of a few weeks remove those who are deficient in arithmetic to special classes where they are taught the fundamentals they need. Most of the teachers of classes in remedial arithmetic gear the work to the interests, needs, and maturation levels of the pupils in such classes.

In the following paragraphs are presented some direct quotations from the letters of schools which are carrying on classes in remedial arithmetic.

South High School, Omaha, Nebraska. "About ten years ago, South High School decided to offer a remedial program in mathematics. Too many students were found to be deficient in the fundamentals of arithmetic to handle algebra and geometry. These students were permitted to take algebra at first and after three weeks trial, those who could not learn algebra or geometry were transferred to 'Special Math.' At present three hundred to four hundred students pass through this course each year. 'Special Math' was developed to meet the actual needs of students. Therefore, it starts as low as fifth-grade arithmetic and goes through to advanced high-school arithmetic."

George Washington High School, Indianapolis, Indiana. "We are doing some work that might be called 'remedial' in arithmetic. We are inclined, however, to avoid the term 'remedial' since this term implies that the schools preceding us have not done their task adequately. Our courses are designed to take students where we find them and we try to secure progress from this point. Our work in remedial arithmetic is still in the experimental stage. The first semester it was given, we gave mimeographed assignments reviewing the fundamental processes, mensuration, and percentage. We tried to carry out a program of individualized instruction but found that many of the difficulties encountered by the pupils applied to a large part of the class. We changed plans then and used a part of the class period to discuss with the class as a whole the underlying principles in solving prob-

lems. In the fundamentals we have insisted on a large amount of drill with weekly check-up on individual improvement. For two semesters we have been selecting drill work from Smith's *Workbook in Business Arithmetic.* We have found much of the work too difficult but have selected work which we felt was needed to bring the student to the high-school level in arithmetic ability. We have given the *Woody-McCall Mixed Fundamentals in Arithmetic Test* as a means of determining their grade placement and as a means of finding the pupils' individual weaknesses."

Special Curriculums for Pupils of Low Mental Ability

Brief descriptions of two schools caring for their remedial arithmetic through special curriculums are given below.

South Philadelphia High School for Girls, Philadelphia, Pennsylvania. "When pupils fail badly with us in their first term, or any term thereafter, and their IQs are low, and when their teachers recommend it, we urge them to go into the Modified Course. Here we endeavor to maintain no particular standards but meet the pupils on their own level even if it happens to be third or fourth grade. We give them work in fundamentals of arithmetic, spelling, handwriting, English, reading, and very simple writing. The girls in this course rarely return to the regular courses. They progress in the Modified Course and are graduated with the other girls, receiving certificates instead of diplomas."

Langley High School, Pittsburgh, Pennsylvania. "Three years ago we organized a class in our Junior-Senior High School which was comprised of all children who were at least two grades retarded, at least two years overage, and whose IQs were below 80. This group is being given three periods a day of so-called academic work including fundamentals of English, basic essentials in arithmetic, and practical social studies. During the rest of the school day these children take various shop courses and electives, such as art, music, and drawing. For arithmetic, I am using *Practical Problems in Arithmetic, Book Four,* published by the Webster Publishing Company, St. Louis. The

problems in this arithmetic book, although practical, are so above the heads of some of the children that I shall have to find more simple material for next year. Of course, before the books were given to the children I cut out all references to the grade levels and have tried to make what we are doing with these children, 15 to 19 years of age, a dignified informal educational activity."

General Mathematics

Work in remedial arithmetic is handled by many schools through classes known as "general mathematics," or through classes of the same character known as "applied mathematics," "practical mathematics," or "everyday mathematics." The content of such courses varies with the different schools, but practically all make provision for work in the fundamental processes of arithmetic. The procedures followed by four high schools in their general mathematics classes are sketched in the following paragraphs.

Emil G. Hirsch Senior High School, Chicago, Illinois. "This semester we have scheduled four classes in General Mathematics as part of our program of remedial instruction. The General Mathematics classes are offered in the 1B and 1A semesters. In all, 123 pupils are registered in General Mathematics. All entering 1B students whose total arithmetic score on the *Chicago Survey Arithmetic Test* is below 7.5 are placed in a General Mathematics 1 class. These pupils are given the *New Stanford Arithmetic Test* toward the end of the semester. Those with a score below 9.0 are given General Mathematics 2 the following semester. These General Mathematics classes are preparatory to the work in algebra for students with arithmetic deficiencies."

South Division High School, Milwaukee, Wisconsin. "The present course in General Mathematics derives its name from the fact that its main objective is the understanding and appreciation of those cultural, social, and utilitarian applications of mathematics necessary for everyday living. While the student becomes acquainted with simpler algebraic concepts and geometrical terms and constructions,

the major part of the year course deals with mathematics (mostly arithmetic) applied to personal, home, and community situations and exemplified in measurements, budgets, scale drawings, percents, insurance, graphs, money, taxes, buying, selling, and simple statistics. Every topic is vitally associated with arithmetic and necessitates computational assignments. The textbooks used are very modern and psychological in their presentations. Decidedly remedial work is offered every so often in challenging test work, followed by definite practice material on the particular type of skill found to require most remediation. The major part of the course is practically a repetition of eighth-grade arithmetic, but the topics in the books are so well motivated that the result is a real mathematical appreciation course, with remedial arithmetic pleasantly associated with mathematical notions which the pupils can really understand and honestly enjoy. The books found very satisfactory for this course are *Mathematics in Life* by Schorling and Clark and *Living Mathematics* by Ruch, Knight, and Hawkins."

Dallas Technical High School, Dallas, Texas. "We have a two-year general mathematics program. All pupils who are weak in the Freshman year in mathematics are required to take general mathematics 1 and 2, and then they may elect the regular sequence of algebra, geometry, trigonometry, or they may continue with the general mathematics for the second year. This second year of general mathematics is applied and technical mathematics for the noncollege boy."

Beaumont High School, St. Louis, Missouri. "Many students are promoted to high school who are not prepared to take formal algebra. Until recently, algebra was required of all our entering pupils. At present, a year of mathematics is required, and while theoretically our pupils may choose between a year of algebra, business arithmetic, or practical mathematics, we do not let it work out that way in practice. In practice, we give all boys and girls entering high school a test called 'The St. Louis Test of the Fundamentals.' A perfect score on this test is 44, and we find that if a student does not make 31 or more he has very little chance of making satisfactory progress in formal

algebra. Hence, we divide the algebra classes very soon after formation and we find by experience that from two-thirds to three-fourths of those who choose algebra are prepared to take it. We actually place the other third or fourth in Practical Mathematics. We do not encourage those who take Practical Mathematics to take algebra after the year of Practical Mathematics. We apply the same criterion to those who sign for Business Arithmetic to determine whether they may take Business Arithmetic or must take Practical Mathematics. In addition to the score of 31 points or more out of 44, we use the ranking of the student in his elementary class at graduation and we use his comparative rating in arithmetic in elementary school."

Central High School, Omaha, Nebraska. "Two years ago we began offering a course in General Mathematics. Students may elect this course at the time of their entrance, or they may be advised to take it after they have been given some tests, or perhaps, even after they have tried algebra for a while. The first semester of General Mathematics, as we teach it, deals very largely with the fundamentals of arithmetic. A second semester of General Mathematics may be elected by the student, or he may go into algebra, depending upon his plans."

Arithmetic Classes for High School Seniors

Realizing that a knowledge of the fundamentals of arithmetic is essential for success in adult life, a number of schools have set up arithmetic classes for those high-school Seniors who are about to graduate and who have as yet failed to master these fundamentals. Such courses are usually called "Senior arithmetic" or "arithmetic review." Excerpts from some of the letters will illustrate methods and procedures employed in these classes.

Benjamin Franklin High School, Los Angeles, California. "The plan for arithmetic review is just beginning to operate. All A-11 pupils take the *Los Angeles Fundamentals of Arithmetic Test.* The tests are then checked by the mathematics teachers. The results are plotted together with the IQ of each pupil. Passing or failing in this

test is determined by relating the test score to the ability level of the pupil as shown by the IQ. For example, pupils of 100 IQ or over must show a grade placement level of 7.5 or better. Pupils of 70 or less IQ are not considered to have failed the test whatever their score. All pupils who have failed this test are then advised to substitute ten weeks of a course in Arithmetic Review for their required ten weeks in Senior B of Consumer Economics or Social Arts, or if they desire a full semester of arithmetic review, they may enroll in General Mathematics B-10. Even those who pass the test may take the ten-week review in arithmetic if they wish to do so. The taking of remedial work in arithmetic is voluntary, at least thus far. But if any pupil is advised to take remedial work because of his failure in the test, and does not do so, a notation of 'deficient in arithmetic' is made on his permanent record card, his last report card, and any transcript of record that is issued."

Arsenal Technical Schools, Indianapolis, Indiana. "A small pamphlet called 'The Fundamentals of Arithmetic' produced locally in mimeographed form is being used for remedial purposes in all classes below Algebra III. This pamphlet consists of ten lessons, which emphasize the fundamentals of arithmetic. Members of the Senior class who are about to graduate are given voluntary instruction on the material in the above-named pamphlet and are tested on the material. The grades made on these tests are incorporated into the permanent records of the school."

Kern County Union High School, Bakersfield, California. "Seniors found deficient in arithmetic through use of a standardized test are required to take a six-weeks' review of these processes without credit and must pass with a minimum standard to be eligible for graduation."

Western High School, Baltimore, Maryland. "We have remedial arithmetic classes for twelfth-grade students who fail to make 80 per cent in a test on arithmetic fundamentals. As soon as pupils are able to pass such a test, they are excused from further attendance in the class."

Commercial Arithmetic, Business Arithmetic, Shop Arithmetic

Although not labeled "remedial," much remedial work in arithmetic is frequently carried on through courses designated as commercial arithmetic, business arithmetic, and shop arithmetic. For example, in Castlemont High School, Oakland, California, "students who are poor in arithmetic may elect business arithmetic." At the Santa Barbara (California) High School, students sign up for "Commercial Arithmetic" if their arithmetic standing is below the 30 percentile on the *Progressive Achievement Test in Arithmetic.*

Teachers in Regular Classes

Some schools try to handle the problem of extreme retardation in arithmetic through the regular mathematics classes. The following quotation illustrates this practice: "We have no special classes for remedial work in arithmetic. The various handicaps are diagnosed by the teachers of mathematics and remedial work is applied in the regular classes."

In addition to such work, many teachers give assistance to pupils who are deficient in arithmetic during open periods or before and after school hours. Schools using such techniques, as a rule, stated their dissatisfaction with the results, and expressed a hope that more specific and better organized work might soon be initiated.

Summary

Many pupils at both the grade school and senior-high-school levels are found who are deficient with respect to the most elementary arithmetical processes. Such weaknesses have become apparent as the result of school surveys. Defective preparation in arithmetic has also been shown by numerous pupils who have accepted positions in industry. Businessmen and officers of the armed forces of the United States have recently emphasized the need for sound training in arithmetic and have deplored the situation which exists.

Evidence is ample that pupils of average or even below average

mental ability can greatly increase their arithmetical skills when suitable remedial measures are instituted. Cases are on record of pupils who have improved as much as four grades as the result of one semester's work. Entire classes have been brought up as much as two grades in four or five months.

Diagnostic tests in arithmetic are of great value in identifying specific weaknesses which pupils possess and in pointing the way toward appropriate remedial instruction. Some of the most useful of these tests have been described in this chapter.

Remedial instruction in arithmetic should be geared not only to the weaknesses in the fundamentals which the tests and other measures reveal, but should also take into account each pupil's interests and goals. Pupils must see how and where the facts they are asked to learn will help them achieve their own objectives.

Experiments in remedial arithmetic and remedial programs are described at length in this chapter. It is evident from published reports as well as from information gained through a nation-wide survey that schools realize the seriousness of the problem and are beginning to give attention to pupils who have not yet mastered the fundamental processes of arithmetic. There appears to be a growing tendency for schools to meet each pupil on his own ground—to take him where he is, and from that point to assist him to achieve greater competence in this most fundamental skill.

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Films

Coronet Films, Coronet Building, Chicago 1, Illinois have several excellent instructional films dealing with the fundamental processes of arithmetic which are useful in remedial teaching. Among those available are the following: *Addition Is Easy* (Grades 1–3), *Decimals Are Easy* (Grades 4–6), *Division Is Easy* (Grades 4–6), *Multiplication Is Easy* (Grades 4–6), *Percent in Every Day Life* (Grades 7–9), *Subtraction Is Easy* (Grades 1–3), *We Discover Fractions* (Grades 4–6). These may be secured in black and white or in color.

Chapter 10

Remedial Spelling

The Spelling Problem

Why should pupils learn to spell? The chief reason is that written communication is rendered possible only through this medium. The pupil who cannot spell at least to some extent cannot write letters, themes, or reports of any kind. The pupil who spells poorly often finds it difficult to make himself understood when called upon to express himself in writing. Furthermore, the poor speller may be stigmatized by society for his inability to master this important skill. Many individuals have failed to secure desirable positions because of misspellings in letters of application or in other writings they have produced.

Teachers at all grade levels are aware that they face a real problem in their attempt to bring their pupils up to a satisfactory level of spelling proficiency. Recently an eighth-grade teacher asked her pupils to write a short paragraph on the subject "What I would do tomorrow if I had a vacation." She showed these papers, which contained numerous misspellings, to the writer. One boy of good general ability wrote as follows:

> if I had a vaccation on tusiday I would finish my choirs and start putting the rings in my moter and nount it on the watter pump. after I finest that I would laid the top floor of the barn.

Another boy wrote:

> I am going to St. Lious to buy a new suit where my boitaday moeny. We are going to seen the hole day over there. . . .

Still another pupil began as follows:

When I get up i'll watch Arthor Godfree then problily go to Johns house and pracites basketball. . . .

There were five other papers from this class of 40 pupils in which the spelling was on the same general level as that shown in the three previous illustrations. This teacher obviously has a remedial spelling problem on her hands.

The writer recently tested the spelling ability of all the ninth-grade pupils in a highly rated Midwestern senior high school. For this purpose he used the 53 words of Columns X and Y of the *Buckingham Extension of the Ayres Spelling Scale*. The results are shown in Table XX. It is clearly seen that much poor spelling exists in this high-school class. Twenty of the 66 pupils tested spell below the sixth-grade level. An examination of the papers revealed that one pupil failed to spell

TABLE XX

Spelling Ability of a High-School Freshman Class as Measured by the Buckingham-Ayres Spelling Scale

SPELLING GRADE	NUMBER OF PUPILS
3.0–3.9	4
4.0–4.9	5
5.0–5.9	11
6.0–6.9	8
7.0–7.9	15
8.0–8.9	10
9.0–9.9	11
Above 10.0	2
Median spelling grade of whole class	7.3

any of the 53 words right and that three others spelled only two of the words correctly.

Column T of the *Buckingham Extension of the Ayres Spelling Scale* was administered to the sub-Freshman class of a university high school. The 24 members of this class were selected to do the work of the seventh and eighth grades in one year because of their outstanding scholarship and general high mental ability. Table XXI shows how this group of superior pupils rated in spelling. The extent of poor

spelling in this class is amazing when one considers the general high level of accomplishment of its members. The girl in the class whose spelling ability falls at the third-grade level has an IQ of 124 (Terman

TABLE XXI

Spelling Ability of a Sub-Freshman Class

SPELLING GRADE	NUMBER OF PUPILS
3.0–3.9	1
4.0–4.9	4
5.0–5.9	3
6.0–6.9	6
7.0–7.9	5
8.0–8.9	2
9.0–9.9	3
Median spelling grade of whole class	6.6

Group Test). She misspelled 46 of the 50 words of Column T which were included in the test. The spellings she gave for the first 15 words on the list were as follows:

The Word	*Her Spelling*
guess	guest
circular	cucaral
argument	aurment
volume	volome
organize	ornicnize
summon	summen
official	ofisul
victim	victom
estimate	estmate
accident	aectian
invitation	enviction
accept	aecsept
impossible	emposable
concern	consern
associate	asosheate

An analysis of this sample of her misspellings indicates a definite lack of ability to reproduce phonetically the various parts of words she is called upon to spell.

Pupils who have not learned how to spell in the elementary and

secondary schools frequently make their way into our colleges and universities. A Junior in engineering was referred to the writer by a geology professor who stated that he had difficulty in reading this student's papers because of the excessive number of words which were always misspelled. The professor was particularly concerned because the young man seemed to be "very intelligent" in other respects. An examination of this student revealed a most amazing situation. Some of the facts are here presented.

CASE OF WILLARD SCOTT

School Grade: University junior

Spelling Ability: Grade levels on Buckingham-Ayres Scale, Columns T, V, and X–5.1, 4.8, 5.2. Misspelled 209 of the 1000 words on the Ayres list. Examples of his misspellings:

The Word	*How He Spelled It*
upon	apon
fail	fale
coming	comming
pretty	pritty
madam	madum
awful	aufel
trouble	trubble
wait	wate
daughter	dauter
education	edgecation

IQ: 135 (Otis Self-Administering Test of Mental Ability, Higher Examination: Form A)

Reading Ability: His paragraph score of 68 on the Nelson-Denny test places him in the top 1 per cent of college Juniors.

Grades for Past Semester: College Physics A, Integral Calculus B, Descriptive Geometry B, Rhetoric D.

Physical Condition: Excellent. Eyes and ears in perfect condition.

Attitude toward His Spelling Disability: Very much upset. Possesses an inferiority complex because of it. Deliberately writes slovenly to cover up as many of his errors as possible.

This young man of excellent mental ability could have been taught to spell in the elementary or secondary school if appropriate methods had been employed. An analysis of his errors clearly shows that he is

a phonetic speller. He spells words as they sound, not as they look. Further testing revealed the fact that he possesses an extremely poor visual memory. Such individuals frequently make excellent progress in learning to spell when the kinaesthetic or tracing method is used. Utilizing this method under the direction of the writer, Willard Scott did learn to spell in a few weeks time the 209 words of the Ayers list he formerly misspelled. And his gains were not temporary, for a retest given over a year later showed that he could still spell these words upon which he had worked.

Some of the evidence presented in the preceding paragraphs as well as that which can be secured from other sources seems to indicate that the number of poor spellers may be on the increase in both our elementary and secondary schools.[1] If this is true, what is the explanation? There are several possible reasons which might be cited. In the first place, the virtual universal attendance at our elementary and secondary schools of pupils of appropriate ages may have added to the proportion of those with meager mental ability.[2] This, however, fails to account for much of the poor spelling, since many of the poorest spellers have high general mental ability. Another explanation is that newer methods of teaching reading do not require as much letter analysis as formerly. Children today are frequently taught in their reading classes to recognize words by their general configuration rather than by the "spelling out" method. The word *automobile*, for example, is recognized because of its length and general shape rather than because it is spelled a-u-t-o-m-o-b-i-l-e. Formerly, pupils learned to spell practically every word they learned to read; today, pupils rec-

[1] Mr. Calvin S. Sifferd working under the writer's direction, administered the Buckingham-Ayres Spelling Scale during December, 1942, to 921 pupils in the public schools of eight western Illinois towns. The pupils tested were unselected children enrolled in grades 4 to 8. None of the grade groups equaled the norms established about 25 years earlier by Ayres and Buckingham. The amount of retardation for the respective grades was found to be as follows: fourth grade, 1.1; fifth, 1.0; sixth, 1.6; seventh, .8; eighth, .7. The average amount of retardation for the entire group of 921 pupils was 1.1 grades.

[2] Recent studies by Finch, however, show that the average IQ of high-school pupils today is equal to or superior to that of pupils 20 years ago. See F. H. Finch, "Are High-School Pupils of the Present Day Inferior to Those of an Earlier Period?" *School Review*, Vol. 52, February, 1944, pp. 84–91.

ognize words on the basis of just a few cues rather than by means of analyzing all the letters involved. This is undoubtedly a superior method of teaching reading, but it leaves much to be desired so far as spelling instruction is concerned. Because present reading methods do not provide sufficient incidental instruction in spelling, schools will have to teach spelling for its own sake or it will not be taught. A third possible explanation for increased disability in spelling is that many elementary schools have decreased the amount of time given to this activity. With the addition of new subjects and other curricular offerings, spelling has been almost crowded out in many school programs. Because of these facts, the spelling problem has become particularly acute in recent years. Many pupils now reach the secondary-school level with the most mediocre of spelling abilities. If these individuals are ever going to learn to spell, the elementary, junior, and senior high schools will have to teach them.

Locating the Poor Spellers

Poor spellers are not difficult to identify. Evidence of their disability can be found on almost every piece of written work that is turned in to the teacher. Glaring errors show up particularly on examination papers which have been written without the assistance of a dictionary or of other individuals. Objective tests are also available which make it possible not only to locate the ineffective spellers but also to determine the extent of the retardation. Such tests as a rule are extremely inexpensive and can be used over and over again with successive classes. A few of the most useful of such spelling tests will now be described.

Buckingham Extension of the Ayers Spelling Scale.[3] This scale is excellently suited for the purpose of identfying poor spellers. Thirty-two columns of words are provided and the teacher selects one of these for use as a spelling test. As a rule, it is desirable for the teacher to dictate about 50 words from a given column in order to ensure a reliable measure. In checking upon the accuracy of a test, one or more

[3] Published by the Public School Publishing Company, Bloomington, Illinois. In testing a class or school only one copy is needed.

adjacent columns can be used. For example, if column U is used as the original test, columns T and V might be used to confirm or supplement the data secured. Grade norms are available for each column of the scale. The norms for columns T, U, and V are as follows:

	T	U	V
Second grade	6	4	2
Third grade	16	12	8
Fourth grade	34	27	21
Fifth grade	50	42	34
Sixth grade	66	58	50
Seventh grade	79	73	66
Eighth grade	88	84	79
Ninth grade	94	92	88

If a pupil should get 6 per cent of the words of column T correct it would indicate that he spells as well as a child who is just finishing the second grade. Since columns U and V contain more difficult words than column T it is necessary to spell correctly only 4 per cent and 2 per cent respectively of these words to rate second-grade spelling ability (end of second grade). If a pupil should spell accurately 58 per cent of the words in column V, his spelling grade would be 7.5. This is found by noting that 50 per cent correct indicates ability at the end of the sixth grade and 66 per cent correct signifies the ability of pupils at the end of the seventh grade. Therefore 58 per cent, which is exactly half way between these two should, by interpolation, represent the spelling ability of a pupil who is just half way through the seventh grade.

In addition to its use as a spelling test, the Buckingham-Ayres Scale can be used as a list of words which pupils should learn to spell. Since most of the words of the scale (Ayres thousand words) are commonly found in business and personal correspondence they should be known by all pupils. When a pupil can spell these thousand words, he will be able to spell correctly about 90 per cent of all the words he will ever have occasion to write.[4]

Although this scale will detect the poor spellers of high-school age,

[4] W. H. Pyle, *The Psychology of the Common Branches,* Baltimore, Warwick and York, Inc., 1930, p. 145.

it will not adequately measure the excellent spellers since the grade norms extend only through grade 9.

High-School Spelling Test.[5] This test which has been especially prepared from use in junior and senior high schools is available in four equivalent forms: I, II, III, and IV. Each form consists of 100 words which were selected from 2,560 words most frequently misspelled by high-school students. In administering the test, the teacher pronounces a word, reads the sentence containing it, and then pronounces the word again. The first five items of Form IV are as follows:

1. approve	The teacher will approve your request	approve
2. absent	We hope that no one will be absent	absent
3. healthy	Everyone should aim to be healthy	healthy
4. least	At least ten boys may go	least
5. suggest	I suggest that you write plainly	suggest

Grade norms based on data from over 350 school systems are provided for Grades VII, VIII, IX, and XII. The tests are highly reliable.

The New Standard High School Spelling Scale.[6] This spelling scale can be used both as a measuring instrument and as a spelling textbook in grades 7 through 12. It contains 3066 words selected both on the basis of frequency of use and difficulty of spelling. Part I of the book consists of 64 columns of words which are called "test lessons in spelling."

These test lessons, which contain 40 words each, are carefully graded in difficulty. Since norms for grades 7, 8, 9, 10, 11, and 12 are provided for each lesson, these lessons may be used as standardized tests.

In Part II of the book, the entire scale of 3066 words is arranged alphabetically. To the right of each word is given the per cent of ninth-, tenth-, eleventh-, and twelfth-grade pupils, respectively, who spell the word correctly. The first ten entries of this list are as follows:

[5] The author of this test is Harold H. Bixler and the publisher is Turner E. Smith and Company, Atlanta, Georgia.

[6] E. P. Simmons and H. H. Bixler, *The New Standard High School Spelling Scale,* Atlanta, Georgia, Turner E. Smith and Company, 64 pp.

	IX	X	XI	XII
abandon	71	76	80	84
abandoned	63	67	71	74
ability	86	90	94	98
abroad	86	90	94	98
absence	80	82	84	86
absent	89	91	92	93
absolutely	85	86	87	88
abstract	88	92	96	99
absurd	56	65	74	83
abundance	68	77	86	96

The teacher can construct a spelling test from the words of Part II of the scale in the following manner:

1. Select 100 words at random from the list of 3066. Write them in a column placing opposite each word the per cent of ninth-, tenth-, eleventh-, and twelfth-grade pupils who spell it correctly. (See the arrangement of the ten words above.)
2. Total the columns of figures for each of the grade levels and then secure the average for each. These resulting averages are the norms for the newly constructed test.

Morrison-McCall Spelling Scale.[7] Eight lists of 50 words each are included in the test booklet. The teacher can select any of these equivalent lists for a spelling test. The procedure is to dictate a word, read the illustrative sentence in which the word is contained, and then dictate the word a second time. Excellent grade and age norms are provided. For example, if a pupil spells 33 of the 50 words correctly, his spelling grade is 6.2 and his spelling age is 12 years and 5 months. The grade norms extend from 1.0 up to 13.0 (from first grade up to college Freshman level). This spelling scale, which is easy to use, is well suited for detecting poor spellers at all grade levels.

Other Spelling Tests. Other spelling tests which can be used in screening out poor spellers are *The Wellesley Spelling Scale*[8] and *The Guy Spelling Scales.*[9] Most achievement-test batteries also contain sections on spelling which can be utilized for this purpose.

[7] By J. Cayce Morrison and W. A. McCall. Published by the World Book Company, Yonkers-on-Hudson, New York, and 2126 Prairie Avenue, Chicago.

[8] Published by the California Test Bureau, 5916 Hollywood Blvd., Los Angeles 28, California.

[9] Distributed by C. A. Gregory Company, 345 Calhoun Street, Cincinnati 19, Ohio.

Causes of Spelling Disability

There are many reasons why pupils fail to learn to spell. Some of these play important roles in the case of one pupil but are unimportant in other cases.

Physical Factors. Physical defects sometimes lie at the bottom of a pupil's difficulty in spelling. For example, visual defects such as exophoria and strabismus are frequently associated with spelling disability. Studies which have been made on the relation of auditory acuity to spelling disability have generally shown little connection between the two, although there are isolated cases where poor hearing plays a major part.[10] Pupils who suffer from any physical ailment or whose vitality is low, often show a lack of ability to concentrate on school subjects of any kind. A standard part of the diagnosis of poor spellers should include a physical checkup.

Intellectual Factors. As a general rule, pupils who score extremely low on intelligence tests tend to have difficulty in the learning of school subjects, while those making high scores on such tests tend to have less difficulty. This holds for spelling as well as for reading or other subjects. However, the relationship between intelligence and spelling ability is much lower than that found between intelligence and most other school subjects.

Spache[11] examined the literature and located fifty-seven correlations which had been worked out between these two factors. He found the median correlated to be .44. Some of the correlations were as low as .08. This means that there are many poor spellers who are average or above average in mental ability and vice versa.

The average IQ of the poor spellers in Russell's study[12] was 101.52,

[10] A. I. Gates and D. H. Russell, *Diagnostic and Remedial Spelling Manual,* Revised Edition, New York, Bureau of Publications, Teachers College, Columbia University, 1940, pp. 35–36.

[11] George Spache, "Spelling Disability Correlates I—Factors Probably Causal in Spelling Disability," *Journal of Educational Research,* Vol. 34, April, 1941, p. 568.

[12] D. H. Russell, *Characteristics of Good and Poor Spellers: A Diagnostic Study,* New York, Bureau of Publications, Teachers College, Columbia University, 1937.

while one group of poor spellers in McGovney's study[13] had IQs ranging from 111 to 126.

These facts demonstrate the necessity for the teacher to investigate other causes in addition to intellectual ones in making a diagnosis of spelling disability.

Emotional Factors. In some cases pupils have developed a dislike for spelling as the result of some early unfortunate experience. One individual accounted for his spelling handicap as follows:

> It was with this teacher that I soon acquired my aversion for spelling and it was not until I met a real, genuine teacher of English in high school that I overcame my aversion and started to rebuild my spelling habits. The situation in particular that produced the disastrous effect was this: The teacher had made it a rule that when a child missed a word in the spelling lesson she would paddle his hand for each word that was misspelled. Naturally the day arrived when I missed a word and became a subject for punishment. The emotional fear that crept over me when I saw her coming toward me has never lost its effect. I had been corrected for misdemeanors by my mother but it was always in a humane and rational way. I knew why I was being corrected. But now I could not see where I had violated any rules of the social order (and I don't yet) and her fierce approach completely upset me for the moment. I didn't cry or do anything except turn pale with fright and an hour later was sent home by the teacher because I was sick. Since that time I have learned that the sickness was probably due to an upset autonomic nervous system. That ended it with me for spelling or anything akin to it. My interest in spelling was so effectively killed that I literally hated the very thought of spelling. This condition stayed with me until I reached the high school. Here there was an English teacher who became very much concerned over my abuse of all the rules of spelling, so she called me to her for an interview. In the interview she stated that my work in English was above the average of the class as far as the content matter was concerned but my spelling was "atrocious." Further, she said that she knew I could learn to spell if I went at it the right way and she proceeded to assist me. The first word that she approached was "receive" and I found for the first time that it was possible to keep the "e" and "i" in their proper order in spelling. Since that time I have acquired a fair proficiency in spelling although I find

[13] Margarita McGovney, "Spelling Deficiencies in Children of Superior General Ability," *Elementary English Review*, Vol. 7, June, 1930, pp. 146–148.

tendencies to revert back to a lot of old habits that I formed before I made any attempt to correct the difficulty.[14]

Deeply conditioned emotional attitudes are difficult to uncondition but there is ample evidence that it can be done. The psychological formula for doing it is to provide "practice with satisfaction." After a time, a new set of attitudes will replace the old unfavorable ones.

Poor Handwriting. It is a common practice among some teachers to count as misspelled those words which are illegible or badly written. Because of this, poor handwriting and poor spelling ability have been found to go hand in hand at least to a slight extent. Furthermore, there is a tendency on the part of poor spellers to write poorly in order to cover up as many of their misspellings as possible. This is particularly true of older pupils who have become senistive about their inability to spell. The procedure of writing illegibly to cover up spelling errors has the effect of increasing the number of words misspelled, as this type of practice does not provide the pupil with vivid and correct visual or kinaesthetic cues for the future writing of the word. The pupil learns to spell the word as he writes it. Thus the adoption of poor handwriting as a cover for poor spelling will in time result in a pupil's misspelling words that he previously spelled correctly.

Teachers of spelling should insist upon legible handwriting. It will bring spelling errors into the open where they can be corrected, and will make the pupil conscious of the fact that words are made up of separate letters the arrangement of which he must learn.

Errors Due to Mispronunciation. Pupils who spell words on the basis of the way they sound rather than the way they look fall into error whenever their own pronunciations of words are incorrect. One pupil, for example, wrote *childern* for *children, famley* for *family,* and *edgecation* for *education.* Words frequently misspelled because they are mispronounced are *athletic, diamond, particular, generally, government, introduce, probably, privilege, recognize, laboratory* and *experiment.* It has been shown that pupils who both mispronounce

[14] J. E. W. Wallin, *Personality Maladjustments and Mental Hygiene,* New York, McGraw-Hill Book Company, Inc., 1935, pp. 186–187.

and misspell such words, quickly improve in spelling ability once the exact pronunciations have been learned.[15] Although this is true, it is obvious that knowing how to pronounce words and knowing how to spell them is not the same thing. The English language is extremely unphonetic. In general, words must be spelled as they look, not as they sound. Errors due to mispronunciation of words are therefore much less numerous than those caused by failure to perceive or remember the exact sequence of letters making up words.

Poor Visual Perception of Words. Some individuals have excellent eyesight but due to inadequate training or faulty work habits fail to perceive the exact configuration of words. Such individuals are invariably poor spellers. One must see a word exactly as it is in order to spell it correctly. If a pupil spells *police, "polece," mountain, "mounten,"* or *mayor, "mayre"* is it possible that he may be poorly perceiving the words he is trying to spell. Pupils who have poor visual perception with respect to words can be detected by means of a test such as is presented in Fig. 12.

Directions for administering this visual perception test are as follows:

1. Pass out the test sheets with the faces down. Insist that the pupils do not turn the tests over until told to do so.
2. Inform the pupils that they will have three minutes to complete the test. Urge them to finish if they possibly can.
3. Tell them to stop instantly when told to stop and to put a mark in front of the last item attempted.

Norms for this test based on seventy college students are:

AV. NO. ATTEMPTED	AV. NO. RIGHT	AV. NO. WRONG	AV. NO. OMITTED	AV. PER CENT OF ACCURACY
46.9	42.9	4.0	13.1	91.5

These norms can be used in evaluating the performances of high-school students since the ability here measured is usually fully developed by the time pupils reach the secondary school. Pupils who

[15] Marjorie E. Kay, "Effect of Errors in Pronunciation upon Spelling," *Elementary English Review*, Vol. 7, March, 1930, pp. 64–66.

are extremely slow in making the discriminations required in this test or who make numerous errors can be said to possess poor visual perception for words.

The writer administered the visual perception test to one of his college classes consisting of 23 persons. The five individuals making the lowest scores on this test were asked to come to his office to take a spelling test. The results were as follows:

STUDENT	SCORES ON VISUAL PERCEPTION TEST		SPELLING GRADE ON BUCKINGHAM-AYRES SPELLING SCALE	
	No. Right	No. Wrong	Column X	Column W
S. V.	25	14	8.6	8.5
J. S. T.	29	1	6.5	6.3
L. F. G.	31	8	10+	10+
C. T.	34	2	8.5	8.6
P. R.	34	2	9.9	10+

Of these five individuals it is seen that three are very poor spellers (S.V., J.S.T., and C.T.). Of the 50 words which were dictated, S. V. misspelled 19, J.S.T. misspelled 35 and C.T. misspelled 19. These cases scored only moderately poor on the visual perception test. Among pupils making extremely low scores, the spelling proficiencies would undoubtedly be proportionately lower.

Pupils who rate very low on the visual perception of words and who are poor spellers, can usually learn to spell by means of the Fernald-Keller tracing method which will be described later in this chapter.

Poor Visual Memory for Words. Now and then an individual shows up who can perceive to a normal extent likenesses and differences between words while they are before him, but who cannot remember how given words look after a period of time has elapsed. Such an individual may be said to have a poor visual memory for words. Willard Scott, the boy whose spelling was discussed earlier in this chapter, represents this type of case. On the visual perception test he made an average score, yet he has the greatest difficulty in remembering exactly how a word looks when asked to spell it. He had

VISUAL PERCEPTION TEST

Check if the two words are spelled differently.

1. abandonment.....abandenment
2. calumnious.....calumnious
3. diaphoresis.....diaphorises
4. geraniaceous.....geranaiceous
5. levorotatory.....levoratatory
6. passementerie.....passementerie
7. rataceous.....rutacious
8. telepathist.....telepethist
9. academicals.....academicals
10. dipsomania.....diposmania
11. gnosticism.....gnostacism
12. linguafranca.....lingaufranca
13. pediculus.....pediculus
14. sanguinaria.....sangiunaria
15. thallophyte.....thallaphyte
16. adjacency.....adjacency
17. categoricalness.....categoricalness
18. disproportionate.....disproportionate
19. granivorous.....granivories
20. longanimity.....longaminity
21. permaebility.....permeability
22. scarabaeus.....scarabaeus
23. pusillanimous.....pusillanimous
24. afforestation.....afforestatian
25. chalcographer.....chalcorgrapher
26. lanuginous.....lanuginous
27. guillemot.....guillemot
28. lycopodium.....lycopodium
29. phlebotomize.....phletobomize
30. scurrelousness.....scurrilousness
31. chevauxdefrise.....chevauxdefrise
32. dutibatively.....dubitatively
33. torrefaction.....torrifaction
34. alkalescent.....alkalecsent
35. harbourage.....harbourage
36. malfeasance.....malfeasance
37. pisciculturist.....piscisulturist
38. septuagenarian.....septuageranian
39. transcendentalism.....transcendentelism
40. amygdaloidal.....amygdeloidal
41. cleistogamy.....cliestogamy
42. embouchure.....embouchure
43. heterosporous.....hetersoporous
44. megasporangium.....megasporangeum
45. polysyndeton.....polysyndeton
46. recalcitrant.....recalcitrant
47. tripinnatifid.....tripinnatafid
48. assafedita.....assafetida
49. consanguineous.....consanguienous
50. philoprogenitive.....philoprogenitive
51. accoucheuse.....accoucheuse
52. apocynaceous.....apocynaceous
53. carbopyridic.....carbopyridic
54. eleemosynery.....eleemosynary
55. infundibulum.....infondibulum
56. machicolation.....machocolition
57. mesencephalon.....nesencephalon
58. pantomine.....pantomime
59. trichocephalus.....trichocephalus
60. zanthoxylum.....zanthoxylum

FIG. 12. VISUAL PERCEPTION TEST (REDUCED IN SIZE)

seen the word *daughter* thousands of times in his life yet he spelled it *dauter*. He likewise had perceived the word *many* even more times than that, yet he spelled it *meany*. A further indication of his lack of ability to remember the arrangement of letters making up words was shown in the following experiment: Three nonsense words, *jeiopersy, beivloerk,* and *stuibreuck* were typed on cards and presented to him one at a time for four seconds. After a card was removed, 20 seconds were allowed to elapse and he was then asked to write it on a sheet of paper. He had no success with any of the three words. This was easily accomplished by several good spellers who were given this same task to perform.

Poor spellers who have poor visual memories can be taught to spell by the tracing method advocated by Fernald and Keller.[16] This method was used with Willard Scott with outstanding success.

Lack of Spelling Practice. This factor probably accounts for a great share of the poor spelling found among pupils. In recent years a decreased emphasis has been placed upon spelling in the elementary schools. As a result many pupils have had very little practice in spelling the most common English words. Poor spelling is a natural outcome.

Pupils who have never learned to spell because they have had few spelling lessons can be taught to spell by regular methods. These should include motivated practice on the basic words of the English language plus practice on the words the pupil misspells in his written work. Barring special defects, anyone can be taught to spell who has a desire to learn.

Diagnostic Spelling Tests

The spelling tests which were described on preceding pages of this chapter are useful in locating poor spellers and in appraising the extent of their retardation. They do not, however, specifically indicate the types of errors that are committed or point to the basic weaknesses in the pupil's spelling technique. Few spelling tests have been

[16] Grace M. Fernald, *Remedial Techniques in Basic School Subjects,* New York, McGraw-Hill Book Company, Inc., 1943, pp. 35–44.

constructed that are really diagnostic. There are, however, two diagnostic spelling tests available which are useful and which deserve mention.

Gates-Russell Spelling Diagnosis Test. This test[17] consists of nine parts as follows: (1) Spelling Words Orally, (2) Word Pronunciation, (3) Giving Letters for Letter Sounds, (4) Spelling One Syllable, (5) Spelling Two Syllables, (6) Word Reversals, (7) Spelling Attack, (8) Auditory Discrimination, (9) Visual, Auditory, Kinaesthetic, and Combined Study Methods. Grade norms which are provided for the various subsections of the test greatly add to its diagnostic value. The test is so constructed that it must be administered to pupils one at a time. This method of administration makes it possible to uncover significant causal factors in spelling disability which might remain unnoticed if a group-testing procedure were employed. The first subtest, Spelling Words Orally,[18] is reproduced in Fig. 13.

Diagnostic Spelling Test. This test[19] which has been constructed by A. L. Lincoln is designed especially for use in junior and senior high schools. Four forms are available. The one hundred words of each form have been arranged in cycles corresponding to the following categories: (1) erroneous pronunciation, (2) the *ie-ei* rule, (3) the *y* to *i* rule, (4) final *e* before a suffix, (5) double consonant before a suffix, (6) demons, (7) English prefixes and suffixes, (8) certain endings and bases derived from Latin, (9) homonyms and words frequently confused, (10) possessives, contractions, solids, hyphens. As can be seen, this test diagnoses primarily errors due to lack of knowledge of certain spelling rules, and errors due to lack of knowledge of how to use apostrophes and hyphens. There are of course many other factors which influence attainment in spelling. For a complete diag-

[17] Published by the Bureau of Publications, Teachers College, Columbia University, New York.

[18] Instructions for administering and interpreting the results of the various subtests are found in A. I. Gates and D. H. Russell, *Diagnostic and Remedial Spelling Manual,* Revised Edition, New York, Bureau of Publications, Teachers College, Columbia University.

[19] Published by the Educational Records Bureau, 437 W. 59th Street, New York.

1. Spelling Words (Do not ask pupil to spell any words after a total of ten errors; write errors above words spelled)

me	it	do	but	are	day
nine	card	mail	catch	teach	built
afraid	travel	prison	factory	visitor	measure
marriage	circular	estimate	elaborate	amusement	necessary
difficulty	approaches	restaurant	arrangement	information	magnificent
acquaintance	hippopotamus	architecture	extraordinary	miscellaneous	conscientious

Notes on Test 1. Score.....

Check:

.....1. Spells as a unit (prisn)
.....2. Spells letter by letter (m-e-s-u-r)
.....3. Spells by digraphs (a-fr-ai-d)
.....4. Spells by syllables (fac-try)
.....5. Spells phonetically (vizater)

Underline:

6. Consistent in the above: yes, fairly, no.
7. He adds syllables; omits syllables.
8. In ten words, no. letters inserted.....; no. letters added..... no. transpositions.....
   no. letters omitted.....; no. substitutions.....(f for v; wh for w, etc.)

Comments:

FIG. 13. SUBTEST 1 (SPELLING WORDS ORALLY) OF THE GATES-RUSSELL SPELLING DIAGNOSIS TEST

nosis of a pupil's spelling disability much additional information would have to be secured.

What Words to Teach Pupils

Schools of former days required pupils to learn to spell thousands of words. Many of these words were never used or seen again by them. Caldwell and Courtis[20] have reproduced some pages from a grade-school spelling book published in 1845. Among the words found there are *circumambient, bacchanalian, amanuensis, corrosibility, pusillanimity, cornucopiae,* and *pericranium.* In the last 35 or 40 years numerous studies have been conducted in an effort to find what are the most common and useful English words. These studies have all shown that a few words do most of our work when we write. For example, the ten words: *the, and, of, to, I, a, in, that, you,* and *for,* recur so frequently that they make up more than one-fourth of all the words written by the average person, while 50 different words with their repetitions constitute approximately one-half of all the words most individuals have occasion to use in their writing.[21]

A first step in remedial spelling would be to teach pupils only the most common words—words that they will have occasion to use over and over again. For this purpose there are several useful word lists available.

Buckingham Extension of the Ayres Spelling Scale.[22] This little booklet contains the Ayres list of the 1000 words most frequently used in letters, newspapers, and good literature. If pupils can learn to spell these 1000 common words, approximately 90 per cent of all their spelling problems will be solved.

Breed's Spelling Vocabulary.[23] Breed has made a compilation of the results of eleven investigations of adult correspondence and of five

[20] Otis W. Caldwell and S. A. Courtis, *Then and Now in Education,* Yonkers-on-Hudson, New York, World Book Company, 1924, pp. 388–389.

[21] Leonard P. Ayres, *A Measuring Scale for Ability in Spelling,* New York, Russell Sage Foundation, 1915, p. 9.

[22] Published by the Public School Publishing Company, Bloomington, Illinois.

[23] Frederick S. Breed, *How to Teach Spelling,* Dansville, New York, F. A. Owen Publishing Company, 1930.

studies of words written by children. His final recommended list containing 3481 words was drawn from the following sources:

1. Words used by children only and appearing in three or more childhood vocabularies	211
2. Words used by adults only and having frequencies of 25 or more in the composite adult list	240
3. Words used by both children and adults	3030
Total	3481

These words account for approximately 98 to 99 per cent of all the running words which are found in the writing of the average child or adult. If pupils know how to spell these words they will have few others to learn. Words not included in this list can be mastered as they are needed in school or in life's activities.

Gates' List of Spelling Difficulties in 3876 Words.[24] The 3876 words which appeared most frequently in 25 widely used spelling textbooks, and state and large-city spelling lists were administered to public-school children in New York City and a study made of the spelling difficulties.

For each word, data were obtained relative to its "hard spots," common misspellings, average spelling grade-placement, and comprehension grade-ratings. The list which was drawn up is alphabetically arranged. The first seven words of this list are reproduced here:

CORRECT SPELLING	COMMON MISSPELLINGS		AV. G.P.	GRADE LEVEL OF COMPREHENSION					
	Error	% Errors		40%	50%	60%	70%	80%	90%
Abil*i*ty (61)	abbility	22.6	8.1	4.7	5.2	5.7	6.4	7.5	+ *
	abilaty	41.9							
ab*le* (91)	abel	35.1	4.8	3.1	3.6	4.1	4.7	5.6	7.0
abo*a*rd (59)			8.0	3.7	4.1	4.6	5.2	6.2	7.7
abo*u*t (65)	abot	14.1	3.3						
	abowt	9.0							
a*b*ove (64)			3.6	—	—	—	3.4	4.3	5.5
abr*oa*d (77)	abrod	36.4	8.0	7.8	8.6	+	+	+	+
absen*ce* (97)	absents	29.2	7.05	—	—	—	—	3.3	4.6
	absense	21.9							

* A minus sign in these columns is read "below grade 3.0"; a plus sign is read "above grade 9.0."

[24] Arthur I. Gates, *A List of Spelling Difficulties in 3876 Words,* New York, Bureau of Publications, Teachers College, Columbia University, 1937.

From the preceding list one can secure the following information about the word *ability:*

1. More pupils have trouble with the second *i* than with any other part of the word. (Hard spots are italicized.)
2. This particular difficulty causes 61 per cent of all the misspellings of this word.
3. The most common misspelling is *abilaty;* 41.9 per cent of all the misspellings take this form.
4. The second most common misspelling is *abbility;* 22.6 per cent of the misspellings take this form.
5. The average grade-placement of the word *ability* as found in the various texts and courses of study in spelling is 8.1.
6. The meaning of the word *ability* is understood by 40 per cent of pupils in grade 4.7, by 50 per cent of pupils in grade 5.2, by 60 per cent of pupils in grade 5.7, by 70 per cent of pupils in grade 6.4, by 80 per cent of pupils in grade 7.5, and by 90 per cent of pupils above grade 9.

Besides providing a set of important words upon which to work, this list is valuable in pointing out to pupils and teachers the specific parts of the words which offer special difficulty. This knowledge can be used to advantage by poor spellers who as a group are notoriously poor in detecting the hard spots in words.[25]

The Dolch List of the Two Thousand Commonest Words for Spelling. Dolch has recently brought together a list of 2000 words which every pupil should learn to spell.[26] In compiling this list, he made use of the following four studies:

1. The Gates list of spelling difficulties in 3876 words.[27]
2. The Fitzgerald list[28] of 2106 words written in letters by children in grades 4, 5, and 6.

[25] Arthur I. Gates, *Ibid.*, p. 5.

[26] E. W. Dolch, *Better Spelling,* Champaign, Illinois, The Garrard Press, 1942, pp. 257–270.

[27] Arthur I. Gates, *op. cit.*

[28] James A. Fitzgerald, "The Vocabulary of Children's Letters Written in Life Outside the School," *Elementary School Journal,* Vol. 34, January, 1934, pp. 358–370.

3. The Smith list[29] of 2156 words written on school papers by pupils in grades 2 to 8.
4. The Free Association Study[30] of 9520 words written by the free association method by 21,659 children in grades 2 through 8.

According to Dolch, these 2000 words make up approximately 95 per cent of all the words an individual will ever have to write.

Other Spelling Vocabulary Studies. Horn[31] has selected 3009 words which he believes pupils should learn to spell. Washburne[32] has compiled a list of 3585 words based upon the studies of Andersen, Tidyman, and Thorndike; and Coleman[33] has presented a list of 3017 words compiled from 33 other lists including such studies as those of Horn.

As a result of these and similar studies, spelling books have undergone considerable change. Instead of containing 20,000 to 30,000 words as was formerly the case, the typical scientifically constructed spelling book of today contains between 3,000 and 4,000 words.

Lists of Spelling Demons. Several lists have been published of words which are particularly difficult for pupils to spell. In Table XXII, the 100 most troublesome words for elementary-school pupils are listed.[34] These words were taken from the misspellings in the creative writing of 14, 643 children in 199 school systems. The words are arranged in the order of their difficulty. The word "their" was the most misspelled—967 times; the word "money" was the least misspelled of those on this list—54 times. A list of words frequently mis-

[29] James H. Smith, "The Vocabulary of Children, Based on Written Papers Selected from Pupils' Daily Work in Various Subjects of the Curriculum," State Teachers College, Oshkosh, Wisconsin, 1935.

[30] B. R. Buckingham and E. W. Dolch, *A Combined Word List,* Boston, Ginn and Company, 1936, pp. 3–7.

[31] Ernest Horn, "The 3,009 Commonest Words Used in Adult Writing," *Fourth Yearbook,* Washington, D.C., Department of Superintendence of the National Education Association, 1926, pp. 146–171.

[32] Carleton W. Washburne, "A Spelling Curriculum Based on Research," *The Elementary School Journal,* Vol. 23, June, 1923, pp. 751–762.

[33] William H. Coleman, *A Critique of Spelling Vocabulary Investigation,* Greeley, Colorado, Colorado State Teachers College, 1931.

[34] Leslie W. Johnson, "One Hundred Words Most Often Misspelled by Children in the Elementary Grades," *Journal of Educational Research,* Vol. 44, October, 1950, pp. 154–155.

spelled by high-school pupils has been drawn up by Garrison[35] on the basis of studies he conducted in North Carolina. This list of 155 words is presented in Table XXIII. Of this list Garrison says, "The alert teacher of spelling will check the locally used high-school spelling vocabulary against these 'demons.' In case this vocabulary seems unsatisfactory she can well adopt the list of 'demons' as a core vocabulary for remedial work, and can gradually expand it into a valid list by adding words found to be commonly misspelled in written exercises."

TABLE XXII

One Hundred Words Most Often Misspelled by Children in the Elementary Grades

their	because	swimming	it's	all right
too	thought	first	started	happened
there	and	were	that's	didn't
they	beautiful	than	would	always
then	its	two	again	surprise
until	went	know	heard	before
our	where	decided	received	caught
asked	stopped	friend	coming	every
off	very	when	to	different
through	morning	let's	said	interesting
you're	something	mother	wanted	sometimes
clothes	named	another	hear	friends
looked	came	threw	from	children
people	name	some	frightened	an
pretty	tried	bought	for	school
running	here	getting	February	jumped
believe	many	going	once	around
little	knew	course	like	dropped
things	with	woman	they're	babies
him	together	animals	cousin	money

Other lists of words which pupils find difficult to spell are:

"Cesander's List of Words," *The New Standard High School Spelling Scale*, Turner E. Smith and Company, Atlanta, Georgia, 1940, pp. 63–64. This list consists of 383 words which were frequently misspelled in examination papers written by high-school pupils in North Dakota.

[35] K. C. Garrison, "High School Spelling Vocabulary," *High School Journal*, Vol. 19, May, 1936, p. 150.

"300 Spelling Demons," *Enjoying English,* Book I, by D. M. Wolf and E. M. Geyer, Thomas Nelson and Sons, 1939, pp. 180–185.

"Words Easily Misspelled," *Learning to Write,* by Reed Smith, Little, Brown and Company, 1937, pp. 300–302. This list contains 249 words.

TABLE XXIII

North Carolina High-School "Spelling Demons"

across	develops	legislative	servant
activities	dictionaries	library	similar
all right	did not	living	soldiers
almost	different	losing	stopped
always	disappointed	Louisiana	stories
amendment	does	magazine	straight
among	does not	main	studying
and	early	manufacturing	subordinate
beautiful	easily	mountains	superintendent
become	enemies	natural	swimming
began	equipped	necessary	temporary
beginning	especially	necessity	that
believe	even	occasionally	there
bicycle	every	opinion	they
born	ever	parallel	together
boundary	farmer	particular	too
buried	father	passed	toward
business	feel	people	traveled
capitol	finally	period	transporting
Carolina	following	permanent	treasurer
carries	four	person	triangle
carrying	getting	politics	tried
century	government	population	until
certain	graduate	possession	usually
character	group	predicate	valuable
children	happened	principal	very
citizen	heroes	probably	visit
college	hurriedly	quantity	volume
colonies	importance	quiet	want
coming	independent	quite	wasn't
commerce	Indians	really	water
comparison	instead	Raleigh	whether
convenient	institution	receive	while
continental	interested	remember	without
corner	interesting	represent	woman
countries	its	republic	writer
course	kept	second	writing
crew	language	sense	written
decided	later	separate	

Although lists of spelling demons have some value in remedial work, they should be used with caution. In Table XXIII, for example, some of the demons are primarily local in nature. The words *Carolina* and *Raleigh* are obviously of greater significance to North Carolina pupils than pupils living in Oregon.

Most Important Words to Teach Pupils. So far as remedial work in spelling at the secondary-school level is concerned, the most important words to teach are those which pupils misspell in their written compositions. Each pupil should learn to spell those words he himself has trouble with. If this can be accomplished the spelling problem will be largely solved. Some pupils, however, do not use certain words in their written work because they do not know how to spell them. Because of this fact, words from lists such as have been described can well be worked into the program. Since 1 to 2 per cent of the average individual's writing consists of words not found in the typical lists of 3500 words it is essential that each pupil learn to find these spellings in a dictionary.

Some Spelling Textbooks and Workbooks

The New Standard High-School Spelling Scale.[36] This book was referred to previously in this chapter in connection with spelling tests. It can be used, however, as the spelling textbook at the junior- and senior-high-school levels. The 64 spelling lessons contain more than 2500 words which high-school pupils should know how to spell. The book provides detailed suggestions to teachers for carrying forward the spelling program.

The Stanford Speller (High-School Edition).[37] This speller is designed specifically for high-school students. It is a combination textbook, workbook, and spelling pad. Each lesson is divided into Exercises A, B, C, D, and E. Exercise A deals with pronunciation, phonics, diacritical markings, and syllabification; Exercise B gives training in the use of the words in the study list; Exercise C provides practice on the words in the study list which the pupil cannot spell; and Exercises

[36] Published by Turner E. Smith and Company, Atlanta, Georgia, 64 pp.
[37] Published by Laidlaw Brothers, Chicago.

D and E are used in testing results. Space is provided at the end of each lesson for the pupil to record the words he has misspelled during the week in any of his written work. *The Stanford Speller* can also be secured for any grade level between 2 and 8.

Chart and Log for Writing Words Right.[38] This is a diagnostic and remedial textbook in spelling which has been especially prepared for use in secondary schools. The 2371 words included in the book are divided into 102 lists. All of the words are common words which are frequently misspelled by pupils. The classroom and study procedure calls for testing, checking errors, recording errors, studying misspelled words, retesting, and recording progress. The book contains a number of unique features. Two especially noteworthy are the system for recording mistakes and the plan for studying words which are misspelled.

My Word Book.[39] This series of spelling workbooks teaches the words of the Breed list. Books are available for grades 2, 3, 4, 5, 6, 7, and 8. The activities of the books for grades 7 and 8 consist of "my pretest," "my test on meaning of words," "studying the problem words," "studying the parts of new words," and "my mastery test." From the fourth grade to the eighth each workbook contains a section called "My Dictionary." This contains in proper dictionary form the correct spelling, pronunciation, and definition of each word in the workbook. Thus each pupil is provided with valuable practice in the use of a dictionary.

Another interesting part of the seventh and eighth-grade workbooks is the "Word Shop." Whenever a pupil misspells a word on a final test or in any of his schoolwork he puts it in his word shop for thorough "repair."

Spelling for Secondary Schools.[40] This useful spelling book contains graded lists of words for the eight semesters of the four-year high-school course—100 words for each semester. The words were

[38] Milton C. Potter and Ethel M. Parkinson, *Chart and Log for Writing Words Right,* Chicago, Mentzer, Bush & Company.

[39] Frederick S. Breed and Ellis C. Seale, *My Word Book,* A Course of Integrated Activities in Spelling, Chicago, Lyons & Carnahan.

[40] Published by the Globe Book Company, 175 Fifth Avenue, New York.

selected on the basis of their frequency in daily use and their demonstrated difficulty in spelling. The usual troublesome part of each word is printed in italicized type in all the lists. Suggestions are given to the instructor on "How to Teach Spelling," and to the student on "How to Become a Better Speller."

Other Spelling Texts. Other excellent spelling texts and workbooks useful in elementary and secondary schools are:

Day-by-Day Speller, Boston, Houghton Mifflin Company.
Guide to Spelling Progress, New York, American Book Company.
Modern-Life Speller, Yonkers-on-Hudson, New York, World Book Company.
My Spelling Studybook, Boston, D. C. Heath and Company.
My Workbook Spelling, Boston, Ginn and Company.
Spelling Today, New York, Charles Scribner's Sons.
Spelling You Need (a high-school spelling textbook), Chicago, J. B. Lippincott Company.
The Pupils' Own Vocabulary Spellers, New York, The Macmillan Company.

Remedial Techniques

Pupils learn to spell by spelling. As with all other learning, however, pupils must be highly motivated if greatest progress is to be made. Pupils should therefore be made aware of the social consequences which result from being unable to spell as well as the rewards which accrue to those who can spell correctly. Pupils use four types of "images" in learning to spell a word, as follows:

1. Visual, or the way the word looks.
2. Auditory, or the way the word sounds.
3. Speech-motor, or the way it feels when spoken.
4. Hand-motor, or the way it feels when written.[41]

Some pupils rely more heavily on one type than on another. The remedial work should assist the pupil to use as many types as possible. In learning a new word it is a good plan to have the pupil

[41] E. P. Simmons and H. H. Bixler, *The New Standard High-School Spelling Scale,* Atlanta, Georgia, Turner E. Smith and Company, 1940, p. 4.

1. Look at the word.
2. Say the word.
3. Write the word while saying the letters.
4. Use the word in a sentence.

In the spelling lesson it is preferable to have pupils write the words rather than to spell them orally because that is the way they will be used. Words are seldom spelled orally anywhere in life except in the school-room. Since the psychological evidence is convincing that pupils *learn to do what they do*, it is most desirable that they learn a skill in the way it will be used.

The Fernald-Keller Kinaesthetic Method. A procedure which has been used with considerable success in teaching the most stubborn cases to spell is known as the "Fernald-Keller kinaesthetic method."[42] It is essentially a tracing method. The teacher writes the word which is to be learned in blackboard-size script on a sheet of paper, using a crayola for this purpose. The pupil is then told to trace the word with his finger, spelling out the letters as he proceeds from left to right. He goes over and over the word in this manner until he can write it himself on another sheet of paper without looking at the copy. After he has mastered the spelling of a given word, he writes it in a sentence or in a story. In the early stages of the work it is most important that the tracing be done with the tip of the finger rather than with a pencil or stylus. Experiments both in learning to spell words by the tracing method[43] and in learning to negotiate a four-section elevated finger-maze have shown that finger contact greatly facilitates the rate of learning.[44]

Many pupils after a certain period of tracing are able to learn to spell a new word merely by writing it out while looking at the written model. Fernald says, "The length of the tracing period varies greatly

[42] Grace M. Fernald and Helen B. Keller, "On Certain Language Disabilities, Their Nature and Treatment," *Mental Measurement Monographs,* No. 11, Baltimore, The Williams and Wilkins Company, 1936.

[43] *Ibid.*, p. 8.

[44] R. W. Husband, "Human Learning on a Four-Section, Elevated Finger-Maze," *Journal of General Psychology,* Vol. 1, January, 1928, pp. 15–28.

Walter Miles, "The High Relief Finger Maze for Human Learning," *Journal of General Psychology,* Vol. 1, January, 1928, pp. 3–14.

with different individuals. No arbitrary limit is set. The child simply stops tracing when he is able to learn without it. If left to himself, he discovers that he is able to learn without the tracing which was so necessary at the start."[45]

Anderson[46] describes the case of a fifteen-year-old boy with a severe spelling disability who was greatly helped by means of the Fernald-Keller method of kinaesthetic training. He was first tested with the *Morrison-McCall Spelling Scale* and made a grade score of 5.8. The remedial work consisted in teaching him to spell several hundred commonly used words. An analysis of the errors he made when these words were first dictated to him revealed four distinctive types:

1. Incorrect auditory impressions, e.g., *illistrate* for *illustrate, addation* for *addition, easer* for *easier, famious* for *famous.*
2. Confusion as to double or single letters, e.g., *efect, dwel, accross, moove.*
3. Substitutions phonetically correct, e.g., *perpus* for *purpose, acer* for *acre, colidge* for *college, prepair* for *prepare.*
4. Reversals, e.g., *peroid* for *period, anmial* for *animal, captial* for *capital.*

Eight and one-half weeks (eight and one-half hours on spelling) were spent with the boy, having him trace with his finger the correct spellings of the words he habitually misspelled. At the end of the training period a comparable form of the *Morrison-McCall Spelling Scale* was used. This time he achieved a grade position of 8.8.

Dr. Anderson[47] makes a very clear and penetrating analysis of the Fernald-Keller kinaesthetic method in the following words. She says:

The value of this method is incontrovertible. The most stubborn cases respond to this approach when all others have failed. Why it is effective is in part a matter of interpretation. Does the child substitute kinaesthetic imagery for visual imagery? Does the simultaneous stimulation of visual, auditory, and kinaesthetic senses aid learning by providing multiple associations which facilitate impression and retention and in turn provide

[45] Grace M. Fernald and Helen B. Keller, *op. cit.*, p. 9.
[46] Rose G. Anderson, "A Note on a Case of Spelling Difficulty," *Journal of Applied Psychology*, Vol. 22, April, 1938, pp. 211–214.
[47] *Ibid.*, pp. 212–213.

multiple clues to recognition and recall? Does the summation of stimuli facilitate visual perception in the case of one child, auditory perception in the case of another, and kinaesthetic perception in a third? Opinions differ. In the case of the boy reported there was objective evidence of his reliance on kinaesthetic cues. In some instances he hastily went through the motions of writing the word on the margin of the paper before writing it in its place on the page.

All will agree that the child simultaneously experiences the word in a variety of ways. Also that the teacher ordinarily has no objective check on faulty "looking." When she says: "But look at it!" and the child directs his eyes to the spot indicated the teacher has no gauge of the amount or kind of activity. Faulty tracing and pronouncing, on the other hand, are immediately apparent. Tracing and pronouncing ensure activity in "looking" and provide an indication of the amount and kind of activity. They also provide appropriate associations with what is seen. In addition they are directly controllable. Furthermore, their control automatically determines the direction and nature of inspection of the word and results in correct habits of inspection, which thus supplant and correct faulty eye movements. Much, perhaps all, of the effectiveness of this approach is inherent in the above considerations.

Spelling Rules. The question of whether or not to use rules in the teaching of spelling is one that is difficult to answer. An analysis of the research on this subject shows the evidence to be extremely conflicting. Cook conducted a study aimed to test the value of seven spelling rules when taught to high-school pupils and college Freshmen. His conclusion was that not a single rule proved to be of real value except the one which says that words ending in *ie* change the *ie* to *y* before adding the suffix *ing*.[48] A study by Watson,[49] on the other hand, showed a slight advantage to accrue when high-school pupils were taught spelling rules. There is some evidence that bright pupils may profit more from a study of spelling rules than their less intelligent classmates.[50] If this is true, a few spelling rules might be

[48] Luella M. King, *Learning and Applying Spelling Rules in Grades Three to Eight*, New York Bureau of Publications, Teachers College, Columbia University, 1932, pp. 1–2.

[49] *Ibid.*, pp. 3–4.

[50] H. A. Carroll, *Generalization of Bright and Dull Children*, New York, Bureau of Publications, Teachers College, Columbia University, 1930.

taught to those poor spellers who have high intelligence quotients. It is extremely doubtful, however, that pupils of below average mental ability can improve their spelling to any great extent by attempting to learn rules. The present writer tends to agree with Professor Horn that "the teaching of rules should be abandoned until more conclusive evidence is presented to show that the time spent in teaching them is as productive of efficiency as the same amount of time spent in teaching the words directly."

Plans Used by Schools for Improving Spelling

Lane High School, Charlottesville, Virginia.[51] This school determined to graduate no pupils who could not show a fair degree of spelling ability. A program was therefore worked out to bring pupils up to a satisfactory standard. The plan is briefly as follows:

1. All pupils are required to take spelling for the first term of each year.
2. Pupils making over 90 per cent on the term examination are exempt from spelling the second term.
3. Monthly tests are given and spelling grades are placed on the report cards and sent to parents.
4. The tests consist of one hundred words each. Fifty of these words are taken from misspellings found in the written work of the pupils and fifty are taken from other sources.
5. No pupil is certified for graduation unless he attains a grade of at least 75 per cent on the final spelling examination.

The spelling instruction in this school is carried on each week during one thirty-minute home-room period. Each pupil works on words he himself misspells. Pupils are also taught how to use the dictionary and are given other basic instruction.

As a result of this school-wide plan, marked improvement in spelling performances were noted. Pupils became greatly concerned about their misspellings and made strenuous efforts to pass the examinations which would place them on the exempt list. The results of the examinations given at the end of each first term beginning in January, 1935, show the following trends:

[51] Hugh L. Sulfridge, "An Experiment in Spelling," *American School Board Journal*, Vol. 99, December, 1939, p. 54.

YEAR	PER CENT OF PUPILS MAKING 90 PER CENT ON THE EXAMINATION
January, 1935	12.3
January, 1936	22.6
January, 1937	34.3
January, 1938	40.0
January, 1939	30.4

Since the plan was put into effect, 598 pupils have met the minimum spelling standard and have graduated. Only six Seniors during this period failed to graduate because of spelling deficiency. Each of these cases, however, returned to school the following term, made up the deficiency, and was eventually graduated.

University of Illinois High School. The ninth-grade English teachers of this school worked out the following plan for use in their classes:

1. Each Tuesday the teacher dictates 25 words from the spelling list[52] to the group that is trying to improve its spelling. Each word that is misspelled is then carefully written on cards of uniform size—one word to each card. This is done by the pupil himself in his best penmanship. Each pupil therefore has a stack of cards upon which appear the correct spellings of the words which are difficult for him. He also provides the teacher with a record of the words that he misspells.

2. On Wednesdays, Thursdays, and Fridays time is devoted to working on these misspelled words. With guidance from the teacher each student works independently on his own stack of cards. The teacher encourages each child to employ the following five steps as an aid to the mastery of his list of difficult words:

Step 1. *Look at the word on your card.* Examine it from left to right. Pay close attention to each part. Notice particularly the spelling at the place where you made your mistake.

[52] These 25 words were taken from Arthur I. Gates, *A List of Spelling Difficulties in 3876 Words,* New York, Bureau of Publications, Teachers College, Columbia University, 1937. Only words having a grade placement above 4.0 were used.

Step 2. *Say the word.* Be sure to pronounce each part distinctly. Give particular attention to the part that gave you trouble.

Step 3. *Write the word.* Without looking at the word write it on a sheet of paper.

Step 4. *Check the word.* Compare the word you have written with the correct spelling of this word. If you have made a mistake, start again at step 1 and repeat the steps.

Step 5. *Use the word in a sentence.* Be sure to know how to use every word that you learn to spell.

3. When a pupil thinks he is able to spell all the words on his stack of cards, he hands the cards to the teacher who dictates the words to him while he writes. The paper is then corrected. The teacher initials each card which has been correctly spelled, nothing being written on those cards on which misspellings occurred.

4. The pupil again studies his list, this time paying particular attention to those words not initialed. When he thinks he is ready, which may be on the following day, he again gives his pack of cards to the teacher who dictates the words to him. As before, the teacher initials all cards that the pupil correctly spells. Those cards which have been correctly spelled twice in succession are retired from the pupil's regular stack and placed in a temporarily inactive stack. The pupil tries to exhaust his active stack as soon as possible.

5. On Mondays the teacher or an appointed pupil-assistant takes the pile of temporarily retired cards of the previous week, and dictates each pupil's words to him. All of these words which are correctly spelled at this time are retired permanently and are not taken up again during the experiment unless they occur in the pupil's written work. Words misspelled are placed again in the active stack and are taken out of it only by the regular procedure. Words can be permanently retired only on Mondays, but words can be temporarily withdrawn from the active list whenever they have been correctly spelled twice in succession. When a pupil has temporarily retired all his cards, he has no further spelling work to do until the following Monday when the test for permanent retirement takes place.

6. Words found misspelled in the written work of pupils are placed on cards and must be retired in the same manner as words which are

misspelled from the list of 25 words which are dictated each Tuesday.

Pupils who showed marked disability in spelling were given careful individual study at the outset of the experiment. The blank which was used for recording the data obtained is presented in Fig. 14.

UNIVERSITY OF ILLINOIS HIGH-SCHOOL
REMEDIAL SPELLING RECORD

Name ..... Birth date ..... Grade .....
I. Q. ..... Reading Grade ..... Test .....
Results of other tests .....

Spelling Grade
New Stanford Achievement Test ..... Date given .....
Ayres-Buckingham Scale ..... Date given .....
..... Date given .....

Diagnosis of the Cause of the Disability:
Defective vision .....
Defective hearing .....
Speech defect .....
Inferior learning capacity .....
Writing difficulty .....
Lack of interest .....
Lack of training .....
Other causes .....

Remarks:

Name of teacher .....

FIG. 14.

Rocky Mount High School, Rocky Mount, North Carolina. The teachers of the Rocky Mount High School have adopted the following proposals concerning the teaching of spelling in the high school:

1. Each subject teacher shall teach the spelling of the words that are used in his subject; that is, the terminology of the particular courses.

2. Each teacher shall require each student to keep a spelling notebook containing a list of the words he has misspelled.

3. Each teacher shall report to the English teacher any student who habitually misspells words and a list of his misspelled words.

4. The English teachers shall accept the responsibility for the formal teaching of spelling in the manner that each teacher thinks best. This teaching shall be based on: (*a*) A list made up of the words misspelled by the students in the English class and in other classes; (*b*) The word list in the textbooks used in the English class.

Commercial High School, Atlanta, Georgia. "This semester we are endeavoring to have the entire student body improve in spelling. Each student is supplied with a copy of the *Standard High School Spelling Scale* (Turner E. Smith and Company of Atlanta) and a spelling notebook. In the latter he writes the words which he misspells in his daily written work in all subjects. We have had a spelling bee with a dictionary offered as prize to the best girl speller and to the best boy speller. We hope that a decided improvement will be registered when our students take the city-wide spelling test on May 2."

The High School of Commerce, New York City. "We have introduced a Civil Service Course for the purpose of conducting remedial work. Our civil service examinations require arithmetic, spelling, English, and other fundamentals, and this course enables us to keep sustained interest in these subjects."

Erasmus Hall High School, Brooklyn, New York. "A spelling clinic is administered by members of Arista, our honor society, under a teacher's supervision."

Wyandotte High School, Kansas City, Kansas. "All English students have spelling and English usage. Our classification into X, Y, Z groups on levels of ability takes care of deficiencies in all subjects."

Santa Barbara High School, Santa Barbara, California. The curricular offerings for 10B students specializing in commercial subjects includes the following course:

Penmanship and Spelling (*one semester course*). A remedial course for students who have difficulty in spelling and writing. Students should sign up for this course if their handwriting and spelling are below the 30th

percentile on the Progressive Achievement Test. Students cannot take this course if above this norm. Secretarial majors, whether above this standard or not, and who wish Penmanship and Spelling should sign up for the double period Problems in Modern Living.

Wilmington High School, Wilmington, Delaware. "We use the Walters *Word Studies,* Southwestern Publishing Company, in all of our commercial classes and intend to use it in our academic classes in the future for remedial work in spelling."

Lubbock, Texas, High School. "We have a spelling lesson over the radio once a week. The spelling lessons are compiled by the different departments, each department providing the lists for a month."

Benjamin Franklin High School, Los Angeles, California. "Every teacher of subjects involving spelling spends time on the subject in his course. Toward the end of the semester each teacher tests every pupil on some 50 of the words studied. Those who miss more than 10 per cent of the words are marked 'deficient in spelling' and that notation is made on their report cards and their permanent records for the semester. During the Senior A semester the pupils are tested on a list of miscellaneous words in general use, and a 10 per cent inaccuracy is recorded as a spelling deficiency on report cards, permanent record cards, and any transcripts of record furnished."

Proviso Township High School, Maywood, Illinois. "In correcting spelling deficiencies, we (1) emphasize in spelling lessons the words each individual misses in his written work, (2) use the Manchester spelling list as a supplementary aid, and (3) provide definite units of study requiring the use of the dictionary."

Trends Among High Schools. There seems to be general agreement among high schools that spelling should be taught to those pupils who are deficient in the subject. Methods of doing this, however, differ widely from school to school as can be seen from the descriptions which have been given. In general, the English and Commercial departments carry the major responsibility for this work. An increasing tendency is noted, however, for all teachers to devote some time in their classes to the teaching of spelling. Some schools require pupils to spell at a minimum proficiency level in order to graduate.

Few high schools have special classes in spelling. The usual procedure is to teach spelling in connection with other work. The remedial English class is widely used for this purpose.

Results Obtained Through Spelling-Improvement Programs

Programs such as those described in the previous pages usually bring about significant gains in the spelling abilities of the pupils participating in them. In the Lane High School of Charlottesville, Virginia,[53] it was seen that the percentage of pupils passing the term examinations in spelling increased steadily from year to year as the result of their all-school program. Furthermore, over a period of five years virtually every graduating Senior was able to attain a satisfactory degree of spelling ability. Poor spellers who followed the program carried out in the University of Illinois High School[54] gained approximately one year in ability during the course of a semester.[55] Other experimental studies which have been conducted show similar trends. Three of these will be briefly described.

Woodrow Wilson Junior High School, San Jose, California. One hundred-four seventh-grade pupils were presented 500 stimulus words 50 at a time over a ten-day period.[56] These words were carefully selected and represented what was believed to be a "good scatter over the fields of the pupils' experiences." "Five spaces were provided after each stimulus word for the pupil to write his responses. The pupil was told to write all the words that the stimulus word made him think of. The pupil was also told that this was a test to find out how many words he knew, and that nothing would be taken off for misspellings so long as the words he wrote could be read." About 18 minutes were allowed for the pupils to write their free associations to each list of 50 stimulus words. Using this technique a list of mis-

[53] See pp. 286–287.
[54] See pp. 287–289.
[55] From data secured by the writer.
[56] John C. Almack and Elmer H. Staffelbach, "An Experimental Study of Individual Improvement in Spelling," *Journal of Educational Research*, Vol. 29, September, 1935, pp. 6–11.

spelled words was secured for each pupil. Two weeks were then devoted to special study of these individual lists of misspelled words. Each pupil worked on his own list during the spelling period under the direction of the regular English teacher.

During the ten days that the stimulus words were being presented and previous to the beginning of the study of individual word lists, three English themes were collected from each pupil as a part of the regular classwork. After the close of the two-weeks period of remedial instruction, three themes were again collected from each pupil. A study was then made of the spelling errors in these two sets of themes. The results were as follows:

	PERCENTAGE OF SPELLING ERRORS IN THEMES		
	Range	Mean	Median
First set of themes	0.0 to 13.9	4.5	3.9
Second set of themes	0.0 to 8.0	2.4	2.0

The two weeks of attention which each pupil devoted to correcting his own misspellings is seen to have resulted in a substantial reduction of errors found in themes. The percentage of errors found in themes after the period of remedial instruction is approximately half of that found prior to this instruction.

University High School, University of Chicago. Twenty-three sub-Freshmen (seventh grade) and 34 Freshmen (ninth grade) were selected for special corrective work in spelling.[57] They were taught by four different teachers in seven different English classes. The number of poor spellers per class ranged from five to ten. The poor spellers in each class were tested on 1500 important words taken from the Breed-French speller. One hundred twenty-five of these words were dictated per week during the first eight weeks and 100 words per week the last five weeks of the experiment. Lists of misspelled words were

[57] H. A. Anderson and A. E. Traxler, "Group Corrective Spelling in the Junior High School—An Experiment," *The School Review*, Vol. 41, October, 1933, pp. 595–603.

assembled for each pupil. One class period per week for 13 weeks was reserved for special study of these misspelled words. While the poor spellers worked on their individual word lists, other members of these English classes read or carried on other activities. At the end of the experiment it was found that both groups of poor spellers had made an average gain of one year in spelling ability as measured by the Ayres scale. The experiment began in February and closed in June. In order to determine whether these gains would be lasting, a retest was made in October of the same year. The results showed that 80 per cent of the improvement which had been made still remained when the pupils returned from their summer vacations.

Junior High Schools, Lucas County, Ohio. An experiment in the improvement of spelling was conducted using seventh- and eighth-grade pupils as subjects.[58] The purpose of the investigation was "to determine the extent to which junior-high-school pupils may be improved by means of a systematic program of spelling based on individual diagnosis of spelling difficulties."

Two groups of pupils were given instruction in spelling—an experimental group consisting of 220 pupils and a matched control group consisting of the same number of individuals. The project covered a period of 18 weeks with two hours per week being devoted to the work.

The instruction in the experimental group was highly individualized. The instructional materials consisted of diagnostic self-tests and an "individualized spelling book" prepared by Guiler. Each pupil discovered the particular words which caused him trouble and underlined the difficult spots. The study which ensued was directed exclusively to these points of error. The work of the control group was organized on a conventional basis. A spelling book was provided each pupil, but no provision was made for diagnostic self-testing. No record was kept of specific pupil errors or especially difficult words.

[58] W. S. Guiler and Gilbert A. Lease, "An Experimental Study of Methods of Instruction in Spelling," *The Elementary School Journal*, Vol. 43, December, 1942, pp. 234–238.

At the end of the investigation it was found that the experimental group had made an average gain in terms of test norms of 1.8 grades while the control group showed a gain of 1.1 grades.

From this experiment it can be concluded that the spelling abilities of pupils may be markedly increased when the work is based upon an individual diagnosis of errors and when the remedial instruction is focused upon the elimination of these errors.

Summary

Poor spelling seems to be on the increase in our schools as judged by the standards of 35 years ago. Pupils need to know how to spell in order to communicate with others in writing and to carry on numerous life activities.

The causes of spelling disability include a variety of physical, intellectual, and emotional factors. Errors may be due to mispronouncing words, poorly perceiving words, inaccurately remembering the letter sequence in words, and to faulty training in phonics. Much disability is due to inadequate and poorly motivated practice.

Pupils should first learn to spell those words they know and use in their writing. Other important words can then be taught. The spellings of infrequently used words can be secured from a dictionary.

In learning to spell a word, visual, auditory, and kinaesthetic cues should be employed. In general it is preferable to have pupils write the words they are learning to spell rather than to spell them orally. In life situations words are written, not spelled orally. The Fernald-Keller tracing method can be used to advantage with pupils who have poor visual memories or who inaccurately perceive words.

Secondary schools are beginning to devote increased attention to the problem of poor spelling among their pupils. For this purpose, numerous remedial procedures and programs are being utilized. Evidence from these programs, as well as from case studies which have been made, clearly indicates that the spelling levels of pupils can be significantly raised when appropriate methods are employed.

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Improve Your Spelling (10 minutes, black and white, and color), Chicago, Illinois, Coronet Instructional Films, 1951.

Chapter 11

Remedial Handwriting

Introduction

No one is more aware of the need for remedial instruction in handwriting than is the teacher who must read hundreds of illegibly written papers which pupils turn in. Although poor handwriting on the part of students is nothing new, there is considerable evidence available which indicates that the average quality has decreased during the past generation. This is undoubtedly due, at least in part, to the decreased emphasis which schools have given to the subject of handwriting in recent years.

Tenwolde[1] using the *Thorndike Handwriting Scale* compared the handwriting of fifth-, sixth-, seventh-, and eighth-grade pupils in 1931 with that of pupils in these same grades in 1879 and 1912.[2] From the results obtained, he concludes as follows:

> The penmanship of 1931 pupils is always inferior to that of pupils in the same grades in 1879 and 1912. The differences are always statistically significant. . . . If we may assume that the pupils in the single 1931 school situation considered are a typical sample, then we may safely assert that pupils in public-school grades 5 through 8 in 1931 write with a penman-

[1] Harry Tenwolde, "A Comparison of the Handwriting of Pupils in Certain Elementary School Grades 'Now and Yesterday,'" *Journal of Applied Psychology*, Vol. 18, June, 1934, pp. 437–442.

[2] The data for handwriting quality 1879 and 1912 were gathered by S. J. Bole and presented in *Penmanship in Grades V, VI, VII, and VIII of the Urbana Public Schools*, Master's Thesis, 1912, University of Illinois Library, Urbana, Illinois.

ship quality which is significantly poorer than that of pupils in the public schools in 1879 and 1912.[3]

Knowing how to write legibly is still an asset even though the need for fancy writing and perfect penmanship may have passed with the advent of the widespread use of typewriters. Individuals still have to write with their own hands themes and examinations in school, checks, sales slips, and letters to friends both during school days and later on in life.

TABLE XXIV

Analysis of the Writing of 3581 Pupils Who Were Finishing the Sixth Grade

(From Grant and Marble)

NATURE OF WRITING PERFORMANCE AND TYPE OF INSTRUCTION NEEDED	SAMPLES RATED	
	NUMBER	PER CENT
Quality A. Writing legible and correct. Pupils who write at this level need no further instruction beyond that required to maintain their skill	859	24
Quality B. Writing essentially legible and correct but contains minor defects which interfere with easy and rapid reading of product. A small amount of individual help will enable a majority of pupils in this group to become proficient writers	1074	30
Quality C. Writing contains a variety of defects in letter formation, size, spacing, slant, etc. Pupils in this group need individual help in diagnosing and overcoming their errors	1003	28
Quality D. Writing definitely lacking in legibility and correctness. Pupils in this group need systematic instruction in essentials of writing	645	18
Total	3581	100

That pupils definitely need instruction in handwriting beyond the sixth grade has been clearly shown in the recent Cincinnati handwriting survey.[4] The results of this survey are presented in Table XXIV. These data show that nearly half (46 per cent) of the pupils possess defects of such a nature as to require special remedial atten-

[3] Harry Tenwolde, *op. cit.*, pp. 441–442.

[4] Albert Grant and Margaret M. Marble, "Results of Cincinnati Handwriting Survey," *The School Review*, Vol. 48, November, 1940, pp. 693–696.

tion. Since these pupils are all finishing the sixth grade, it is obvious that this work must become the responsibility of the junior and senior high schools.

Several studies have been made in an effort to determine the degree of proficiency pupils should acquire in their writing. Freeman,[5] by means of a questionnaire, investigated the quality of handwriting required by such commercial firms as mail-order houses and packing companies. The results of this study indicated that satisfactory writing should be at least as good as quality 60 on the *Ayres Measuring Scale for Handwriting*. Some of the firms demanded a quality of handwriting that would lie somewhere between 70 and 90 of the same scale. Koos[6] analyzed specimens of social correspondence and business writing and concluded that a quality of 60 as rated by the Ayres scale is sufficient for most social correspondence as well as for the needs in many vocations. For schoolteachers and those engaged in commercial work he advocated a quality of writing equivalent to 70 on the Ayres scale.

In Fig. 15 is reproduced a portion of the Ayres scale[7] which includes a specimen of handwriting at the quality level of 60. Many pupils enrolled in our upper grades and secondary schools obviously fail to reach the standard of handwriting which is there illustrated.

Identifying Pupils Needing Remedial Instruction

An examination of handwriting in the themes of pupils will give some clues as to the identity of those who write at a satisfactory level as well as those whose writing is totally unsatisfactory. This method, however, cannot be relied on entirely. Some pupils, when given sufficient time, can produce legible writing, but when under pressure or in a hurry, their writing skills regress to an extremely low level. Other

[5] Frank N. Freeman, "Handwriting," *Sixteenth Yearbook of the National Society for the Study of Education*, Part I, Bloomington, Illinois, Public School Publishing Company, 1917, pp. 60–72.

[6] L. V. Koos, "Determination of Ultimate Standard of Quality in Handwriting for Public Schools," *Elementary School Journal*, Vol. 18, February, 1918, pp. 423–446.

[7] Published by the Russell Sage Foundation, New York.

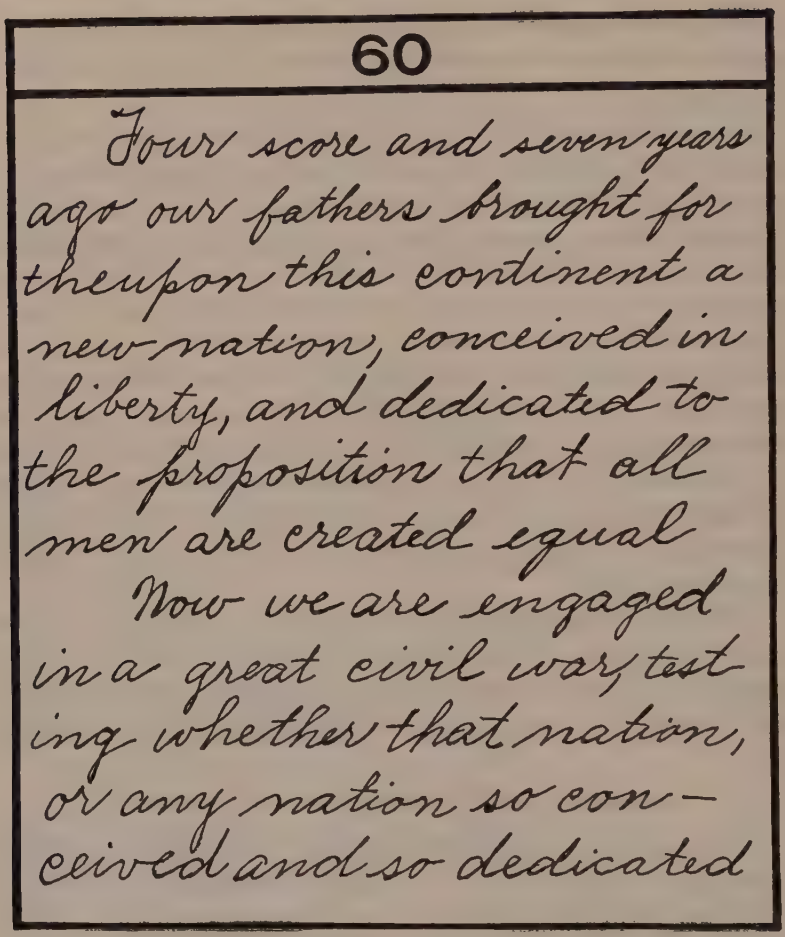

60
Four score and seven years
ago our fathers brought for
theupon this continent a
new nation, conceived in
liberty, and dedicated to
the proposition that all
men are created equal
Now we are engaged
in a great civil war, test-
ing whether that nation,
or any nation so con-
ceived and so dedicated

FIG. 15. QUALITY 60 OF THE AYRES MEASURING SCALE FOR HANDWRITING (GETTYSBURG EDITION)

pupils whose written work is obviously poor could write much better if they so desired or were sufficiently motivated.

Because of these facts, it is desirable to obtain supplementary data consisting of specimens of a pupil's handwriting secured under better

controlled conditions. For this purpose both a timed and an untimed test should be employed. Any sentence or paragraph may be used for the writing test provided it fulfills the following two requirements: (1) contains no words that would give the pupils pause because of spelling difficulties, and (2) possesses a content that is within the range of the experience and comprehension of the pupils. Let us suppose that the following sentence has been selected by the teacher and written upon the blackboard:

To get the best cotton crop, the farmer would choose for planting mild spring weather with frequent light showers.

After the pupils have read the sentence over several times and are familiar with it, the teacher can give the following instructions for an untimed test:

Write this sentence five times in your very best handwriting. You may take all the time you need. We want to find out how well you can write.

Following this untimed test, instructions for a speed test can be given:

Now, we want to see how rapidly you can write. Write this same sentence as many times as you possibly can. In three minutes you will be told to stop, and we will count the number of times you have written it. Ready! Begin!

In evaluating the results of these two tests special attention should be given to (1) the quality of writing in the untimed test, (2) the relationship of the quality of the writing in the untimed test to that in the timed test, and (3) the speed of writing of the timed test.

The following types of pupils should be selected for remedial work in handwriting:

1. Those whose quality of writing on the untimed test proves to be poor.
2. Those whose quality of writing breaks down to a marked extent under the pressure of speed.
3. Those whose rate of writing is extremely slow.

4. Those who write an extreme "backhand" and those whose writing is so large or so small as to render it virtually illegible.

Shoen[8] has given the following reasons why a pronounced backhand is difficult to read:

1. The reader is used to reading words in books where the letters are upright or vertical, or slightly slanted toward the right. He never reads backhand in books. This makes backhand more difficult to recognize because the reader is less familiar with it.
2. The classic shapes of the letters are distorted when they are made backhand, and they are not what they are meant to be. The reader must pause to puzzle over what the letters are supposed to be.
3. The reader, used to reading English from left to right, has formed habits of eye movement in that direction. When reading backhand, the reader's eyes are constantly being sent off toward the left along the backward sloping ascending and descending strokes of the *h*'s, *b*'s, *g*'s, and *y*'s. This interference with eye-movement habits causes a strain to the reader's eyes.

For most purposes this informal method of identifying poor writers which has been described in the preceding paragraphs will be adequate. There are, however, several well-known standardized handwriting scales which can be used to detect and evaluate writing deficiency. A brief description of four of these are presented herewith.

The Thorndike Scale for Handwriting.[9] This handwriting scale, which is the first ever constructed, can be used to evaluate both the quality and speed of a pupil's penmanship. The scale, which is presented on one large sheet of paper, consists of 15 different qualities of handwriting ranging from very poor up to that which might be found in a penmanship copybook. The poorest writing has a scale value of 4, while the scale value of the best writing is 18. Grade norms for quality and speed provided with the scale are as follows:

[8] Harriet H. Shoen, *Improving the Handwriting of High School Students,* Teachers' Lesson Unit Series, No. 52, New York, Bureau of Publications, Teachers College, Columbia University, p. 3.

[9] Published by the Bureau of Publications, Teachers College, Columbia University, New York. No individual pupil material is necessary. May also be secured from C. A. Gregory Company, Cincinnati, Ohio.

GRADE	II	III	IV	V	VI	VII	VIII
Quality:							
Usual	7.0	7.8	8.6	9.3	9.9	10.5	11.0
Best	8.5	9.3	10.1	10.8	11.4	12.0	12.5
Speed:	35	45	55	64	72	77	80

By *usual quality* is meant the quality of writing found in a pupil's regular school papers, while *best quality* refers to writing which is done following the instruction "write as well as you can." The standards given are the medians found at the middle of the second half of each grade. The speed norms are expressed in terms of letters written per minute "without substantial loss in quality of writing, when the material being written is so familiar as to require no time for study or reflection, and when the total time of the test trial is not over three minutes."

Let us suppose that Johnny Smith is a high-school sophomore whose writing we wish to evaluate. We first secure a specimen of his writing. His last examination paper in history will serve the purpose. This writing is then moved over the scale until it is matched for quality with one of the 15 different scaled specimens. If Johnny's writing (usual) corresponds most closely to the example on the scale labeled 9, we can conclude that he writes about as well as a fifth grader. To measure his speed of writing, we could allow him three minutes in which to write over and over again as rapidly as possible some simple sentence. He should be instructed to maintain his usual quality of writing while doing this. At the end of three minutes the number of letters written can be counted. Suppose Johnny wrote an average of 54 letters per minute. By referring to the norms, we conclude that his speed of writing is roughly at the fourth-grade level.

The Thorndike Handwriting Scale is primarily a survey instrument and as such is not highly diagnostic. That is, it does not point out the specific defects which lie at the bottom of a pupil's illegible handwriting.

Ayres Measuring Scale for Handwriting (Gettysburg Edition).[10]

[10] Can be secured from the Public School Publishing Company, Bloomington, Illinois. Published by Russell Sage Foundation, New York.

This scale is known as the "Gettysburg Edition" because it utilizes the first three sentences of Lincoln's Gettysburg Address as copy material. The teacher writes this material on the blackboard and the pupils read and copy it until they become familiar with it. This is done prior to administering the test and in preparation for it. When the teacher is ready for the test proper, a signal is given and the pupils write for exactly two minutes. Following this, the papers are scored by sliding them along the scale until writing of the same quality is found. In doing this, differences in style are disregarded, the point being to find on the scale the quality corresponding to that of the sample being scored. Quality 60 on this scale is reproduced in Fig. 15. This scale, like the Thorndike scale, is a survey instrument and is

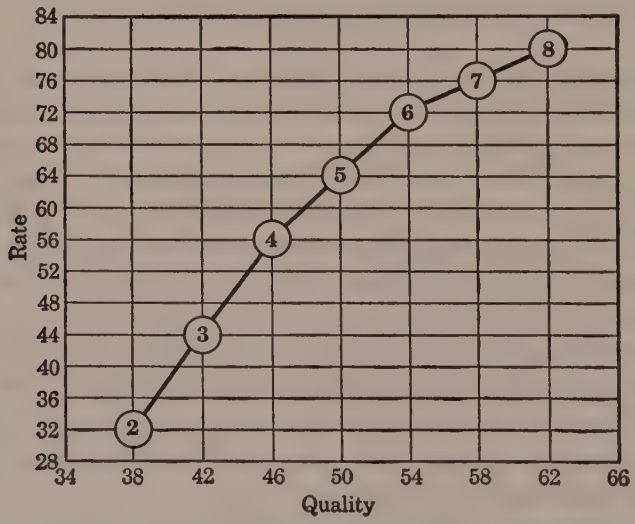


FIG. 16. RATE AND QUALITY NORMS FOR THE AYRES MEASURING SCALE FOR HANDWRITING (GETTYSBURG EDITION)

chiefly useful in locating and evaluating poor specimens of handwriting. Rate and quality norms for the different school grades are given in Fig. 16. It is seen there that the average number of letters written per minute by pupils in the second grade is 31, in the third grade 44, in the fourth 55, in the fifth 64, in the sixth 71, in the seventh 76, and

in the eighth grade 79. The quality levels for the different grades are found along the base line of Fig. 16.

The American Handwriting Scale.[11] This is one of the newer handwriting scales. Although prepared by West for use in grades 2 through 8, it can be employed to evaluate the handwriting of the poorer writers in senior high schools. For each grade level, seven specimens of handwriting are given and labeled as follows: "very poor," "poor," "below fair," "fair," "good," "very good," and "excellent." The scale is really a group of seven scales on one large sheet of paper. Altogether, 49 specimens of handwriting are provided which can be used to evaluate the quality of writing of any pupil. Norms for speed of writing are also given. This scale serves much the same purpose as does either the Thorndike or the Ayres scale. It is probably to be preferred over the Thorndike scale because its more recent construction has allowed it to represent more adequately the types of writing now generally taught.

Minneapolis Handwriting Scale.[12] This very usable scale has been designed by Ellen C. Nystrom, supervisor of handwriting in the Minneapolis public schools. It contains eight specimens of writing whose scores are equivalent to the values on the Ayres scale. The desirable standard for grades 6 to 12 is represented by Quality 70 which is illustrated in Fig. 17.

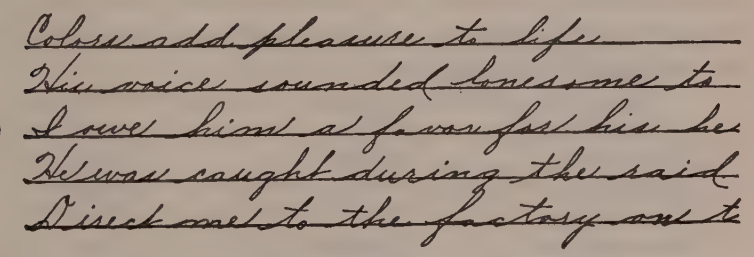

Colors add pleasure to life
His voice sounded lonesome to
70 I owe him a favor for his he
He was caught during the said
Direct me to the factory on t

FIG. 17. QUALITY 70 OF THE MINNEAPOLIS HANDWRITING SCALE FOR GRADES SIX TO TWELVE (REDUCED IN SIZE)

[11] Published by the A. N. Palmer Company, New York.

[12] Distributed by the Farnham Printing and Stationery Company, Minneapolis, Minnesota. Copyrighted by Ellen C. Nystrom.

Diagnostic Handwriting Charts

After the pupils have been selected who are most in need of remedial treatment in handwriting, it is desirable to make as complete an inventory as possible of their individual weaknesses. For this purpose, several excellent diagnostic handwriting charts are available.

Self-Corrective Handwriting Charts.[13] There are ten diagnostic handwriting charts in this series. The aspects of handwriting analyzed are color, size, slant, letter spacing, beginning and ending strokes, word spacing, alignment, and letter and figure forms. These charts not only make possible a very thorough diagnosis of defects, but in addition they contain excellent suggestions and exercises for correcting the deficiencies which are revealed. One side of Chart VI dealing with letter spacing is reproduced in Fig. 18.

The Pressey Chart for Diagnosis of Illegibilities in Handwriting.[14] Before using this chart, pupils' papers (themes or examinations) are first read, and every word is marked which is undecipherable or which requires a "second look" to make out its meaning. Following this, each illegibility is analyzed, classified, and recorded on the diagnostic chart. The chart provides sufficient space for recording the errors of as many as 40 pupils. Thus when the tabulation is completed, the teacher has a summary not only of each pupil's weakness but also of the class as a whole. The chart was drawn up as the result of research which revealed the characteristic types of illegibilities and malformations made by pupils in their writing. Among the types of errors listed on the chart are:

Words crowded	*a* like *o*	*c* like *e*
Too angular	*a* like *ci*	*c* like *i*
Words broken	*b* like *li*	*c* like *a*
Letters crowded	*b* like *l*	*d* like *cl*
Lines crowded	*b* like *k*	*d* like *I*
a like *u*	*b* like *f*	*d* like *a*
e closed	*n* like *u*	*s* like *o*

[13] Distributed by the Farnham Printing and Stationery Company, 501 Seventh Avenue South, Minneapolis, Minnesota. Copyrighted by Ellen C. Nystrom.

[14] Published by the Public School Publishing Company, Bloomington, Illinois.

e too high	*n* like *v*	*t* like *l*
e like *c*	*n* like *s*	*t* cross above
f like *b*	*o* like *a*	*t* no cross
of like *oj*	*o* like *r*	*t* cross right
g like *y*	*o* closed	*t* cross left
h like *li*	*o* like *u*	*u* like *oi*
h like *p*	*r* like *i*	*ur* like *w*
h like *b*	*r* like *s*	*v* like *n*
h like *l*	*r* too small	*v* like *r*
i like *e*	*r* half *n*	*w* like *u*
i no dot	*r* like *u*	*w* like *m*
k like *h*	*r* like *e*	*wr* like *ur*
l closed	*s* indistinct	*D* not closed
l too short	*s* like *r*	*I* like *cl*
m like *w*	*s* like *i*	*T* like *L*

Pressey's investigation which resulted in the construction of this chart revealed that a few letters cause most of the trouble. For example, the seven small letters, *r, n, e, a, o, s,* and *t* account for over half of all the illegibilities found. The most troublesome letter is *r,* with *n* ranking second. The six most common errors are due to making *r* look like *i, n* look like *u,* closing the *e,* making *d* look like *cl, o* look like *a,* and *a* look like *u.* Capital letters are generally legible, the chief exception being the letter *I* which is frequently difficult to decipher. Since seven small letters and one capital letter enter into such a great proportion of all illegibilities, it would appear that the emphasis in remedial work could well be directed toward teaching the proper formation of these letters. As a matter of fact, studies have shown that this technique yields most satisfying dividends.[15]

Freeman's Chart for Diagnosing Faults in Handwriting.[16] This chart, which is printed on one large sheet of paper, can be used to evaluate the following aspects of handwriting: (1) uniformity of slant, (2) uniformity of alignment, (3) quality of line, (4) letter forma-

[15] W. S. Guiler, "Improving Handwriting Ability," *Elementary School Journal,* Vol. 30, September, 1929, pp. 56–62.
Hilda Lehman and Luella C. Pressey, "The Effectiveness of Drill in Handwriting to Remove Specific Illegibilities," *School and Society,* Vol. 27, May 5, 1928, pp. 546–548.

[16] Published by Houghton Mifflin Company, Boston.

High School Handwriting Charts

Chart VI—Letter Spacing

CORRECT LETTER SPACING. Correct letter spacing can be secured by making the upward curves of the letters in the standard slant. When this is done the curve will be that of a two space oval of correct slant. (See Standard below.)

I owe him as fa
He was caught.
Direct me to the

IRREGULAR LETTER SPACING. Why is this writing difficult to read? What letters have defects in form? Irregular letter spacing is usually the result of irregular slant.

shoulder hit th
ugh seems wor
add pleasure s

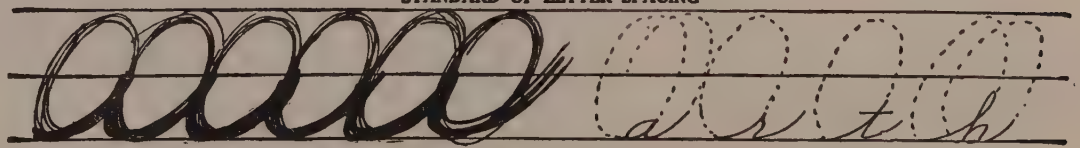
CROWDED LETTER SPACING. Why is this writing difficult to read? What letters have defects in form? Crowded letter spacing is usually the result of too much slant.

I owe him a
He was cau
Direct me t

SCATTERED LETTER SPACING. Why is this writing difficult to read? What letters have defects in form? Scattered letter spacing is usually the result of a lack of slant.

sure to sign
d someone to
ver for his h

STANDARD OF LETTER SPACING



CORRECTIONS OF DEFECTS IN LETTER SPACING

1. Your teacher will give you a timed dictation test.
2. Compare this with your handwriting scale to see if your writing is below, up to, or above the standard for your grade. Keep a record of your score. Have you improved?
3. Compare this test with your letter spacing chart. Have you a defect in letter spacing? What is it? What causes it? See Diagram I. What letters, or combinations of letters are affected by defects in letter spacing? Find on the letter spacing chart how to secure correct letter spacing.
4. The exercises which follow should be used to help you to correct your defects in the spacing of your letters.
5. Check these exercises for color, size, and slant, also.

Exercise I
For checking the spacing of letters

(For b, o, v, w)

wrong	however	avenue	public
blown	above	crown	writing
often	provide	probably	souvenir
power		favorite	

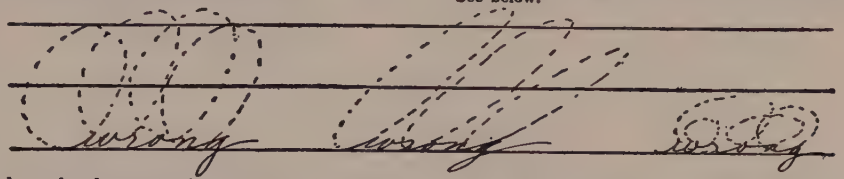
(For double-curve connecting strokes, gh, gr, ju, etc.)

juice	privilege	laughter	sleigh
fatigue	ought	regular	lying
abyss	gladden	injury	gypsy
apologize		college	

Use this procedure:

Chart V shows you that correct letter spacing depends on the correct slant of the letters. For this reason, place your paper so as to insure correct slant of the letters. Be careful to shift it to the left often enough to keep the slant uniform.

1. Copy the first list of words. Check for errors in the letter spacing by continuing the upstrokes into an oval. If the letter spacing is crowded the oval will be very long and narrow. If the letter spacing is scattered the oval will be short and wide. Correct letter spacing makes a two space oval of correct slant. See below.



2. Re-write each word at least twice for correction. This means that you should not re-write the whole list of words at once, but treat each word separately, so that you can concentrate on the correction of your defect in letter spacing. Check for errors and compare with your chart. Is your third trial better than your first?
3. Re-write the list from your teacher's dictation. Check for defects in letter spacing and compare with the letter spacing chart. This trial tells you whether or not you are retaining your corrections.
4. Continue this practice until the dictated trial is free from errors in letter spacing.
5. Use the above procedure for the other lists of words in Exercise I.
6. Watch the letter spacing in all of your writing.

FIG. 18. CHART VI OF THE SELF-CORRECTIVE HANDWRITING CHARTS FOR GRADES SEVEN TO TWELVE

tion, and (5) spacing. Specimen writing representing highest quality, medium quality, and lowest quality are printed on the chart for each of these five categories. A given pupil's writing is compared with each of these specimens. A score of 1 is given for the lowest quality, a score of 3 for medium, and a score of 5 for highest quality. If in the judgment of the teacher a pupil's writing seems to fall in between any two of these specimens, the intermediate scores of 2 and 4 may be used. The value of such a chart lies chiefly in directing the attention of both the pupil and teacher to what are good and weak points in handwriting. If such a chart were hung on the bulletin board, pupils could easily see what constitutes poor alignment, good alignment, and excellent alignment. This would tend to make them conscious of their own errors and should lead to improvement in their writing.

Newland's Chart for Diagnosis of Illegibilities in Written Arabic Numerals.[17] This chart is similar in many ways to the Pressey chart. It, however, is concerned with diagnosing errors in writing numbers which is not true of the Pressey chart. Space is provided for recording the characteristic errors of pupils. The author describes the construction of the chart as follows:

> The chart is constructed on the basis of results obtained from an analysis of the illegibilities made in the writing of some 135,000 digits by approximately 1125 different persons ranging from pupils in the lower half of the third grade, up through the fourth, seventh, eighth, and ninth grades, to adults who had written bank checks, deposit slips, department-store sales slips, and bus reports—the digit actually intended in all cases being determined by a checking process. The thirty-four types of illegibilities shown inside this folder constitute roughly 90 per cent of the total number of illegibilities found.

According to Newland's research, some of the most common illegibilities in writing numbers are due to:

1. Making the numeral 1 in such a way that it possesses an ornate short stroke at the top—such as is found in print.
2. Writing the numeral 2 with an initial short downward stroke.

[17] Published by Public School Publishing Company, Bloomington, Illinois. One copy is sufficient for a class of twenty-five pupils.

3. Leaving off the horizontal dash on the numeral 5.

4. Forgetting to close properly the loop on the numeral 9 thus confusing it with numeral 4 or making the loop on the 9 so large as to confuse it with 0.

West Chart for Diagnosing Elements of Handwriting.[18] The characteristics which are listed on this chart are: (1) rate (letters per minute), (2) quality of writing (Ayres scale), (3) letter form, (4) slant, (5) coordination, (6) motor control, (7) unit stroke, and (8) spacing. In West's little pamphlet entitled *Elements of Diagnosis and Judgment of Handwriting,*[19] a very enlightening and complete description of the use of this chart is given.

Causes of Deficiency in Handwriting

Hildreth has stated that "disability in handwriting can be traced to two major sources: first, eccentricities or deficiencies in the mental or physical condition of the writer; second, inappropriateness of instructional method."[20]

Under the first group is listed:

Inaptitude for learning motor and language skills
Unstable and erratic temperament
Disinclination to practice
Difficulty in retaining visual impressions
Left-handedness or ambidexterity
Defective vision necessitating glasses, especially for astigmatism
Paralytic, spastic, crippled conditions

Among the factors falling under the second heading are:

Too early, forced instruction
Complete lack of supervision
Uniform, undifferentiated group drills

[18] Published by Public School Publishing Company, Bloomington, Illinois. One copy is sufficient for a class of forty pupils.

[19] Published by Public School Publishing Company, Bloomington, Illinois, 22 pp.

[20] Gertrude Hildreth, *Learning the Three R's,* Minneapolis, Educational Publishers, Inc., 1936, p. 514.

Practice of error
Inappropriate writing materials, pencils, pens, paper
Incorrect position of paper
Transition from one style of writing to another
Neglect of writing practice in high school[21]

Of the factors listed in the first group the one which is probably of greatest significance insofar as pupils in secondary schools are concerned is "disinclination to practice." Most pupils at this level are free from gross physical or mental defects and could learn to write legibly and with speed if they were properly motivated to do so. The other factors do, however, play important roles in individual cases and should not be overlooked in making the diagnosis.

The causes listed under the second heading all play important parts in producing writing deficiency among pupils. A sound handwriting program can do much to mitigate the effect of some of these causes as well as to remove others entirely.

Handwriting is a habit and as such is amenable to all the laws of habit formation. When wrong habits have been formed, they must be replaced by good ones. This means that the specific errors and bad writing habits of each pupil must be identified and brought out into the open. A diagnostic chart such as has been constructed by Pressey is an excellent device for doing this.

Remedial Techniques

As has been suggested, remedial handwriting should be taught on an individual basis with each pupil focusing his attention on improving his own writing habits. Drill consisting of general exercises in penmanship will prove to be of little value since they do not require the pupil to criticize his own product and make improvements where weaknesses are discovered. If the teacher has a large number of pupils in the handwriting class, it is difficult to adhere to the principle of individual instruction. Yet this must be done if effective work is to result. When several pupils are found to possess the same defect or defects, group work can, of course, be advantageously conducted.

[21] Gertrude Hildreth, *ibid.*, pp. 514–515.

Individuals who are not weak in a particular phase of handwriting should not be drilled in that phase just because others in the room need such instruction. Instead they should work independently on their own defects or be excused from the drill altogether.

From the outset, the handwriting instruction should be highly motivated. Each pupil should be made to realize the value of being able to write rapidly and well. Standards of achievement should be set and records kept of the progress each pupil makes toward his goal, *viz.*, the elimination of his own illegibilities and the development of adequate speed of writing. Teachers should generously commend pupils for work well done. This serves as a most potent aid to learning.

Smith,[22] a teacher in New Jersey, has stated that in his experience pupils are motivated to write well if the teacher emphasizes (1) the profit motive in a personal sense, (2) higher school grades because of improved quality of work, (3) greater possibility of obtaining a position when written application for job is essential, and (4) likelihood of better salary because of good writing. This type of appeal will be particularly effective with commercial students who are often called upon to earn their living by means of writing. It should also prove stimulating to pupils enrolled in other curriculums.

Improving Speed of Writing. Many pupils do not know whether their speed of writing is below par or above. It is, therefore, a good plan to administer a rate test and then acquaint the pupils with the norms for their grade or class. Those pupils whose rate of writing is inordinately slow will in most cases immediately show an interest in improving their speed. Rate tests can be given periodically as a means of informing pupils of their progress in this aspect of writing. For best results, these tests should be dated and kept in order so that the growth curve can be accurately plotted. On the basis of his experience, Richardson remarks:

> Possibly one of the greatest aids in promoting fluency in writing is counting for students. This, of course, requires trying out the speed beforehand

[22] Harry D. Smith, "Penmanship in the Secondary Schools," *The Business Education World,* Vol. 19, January, 1939, pp. 415–416.

and memorizing it to some extent. I find it helpful, especially with boys' classes, to write at my desk with them as I count for them. They generally try to avoid getting behind and often try to exceed the speed given.[23]

Instruction in Handwriting for the Left-Handed Pupil. In the average classroom, there are two or three pupils who prefer to use their left hands when writing. Because such individuals are greatly in the minority, they are sometimes either ignored by teachers or trained in penmanship methods which are appropriate only for right-handed pupils. Such a procedure is responsible for much illegible handwriting as well as much nervous strain on the part of left-handed pupils.

Some important points which teachers should keep in mind when supervising the writing instruction of sinistrals will now be considered.

EMOTIONAL ATTITUDE OF THE PUPIL. Many left-handed pupils have developed a feeling that they are queer or abnormal in some respect because they do not write with the same hand as do most of their classmates. This feeling is further accentuated by the attitudes of some teachers who consider the left-handed pupil a nuisance and who are ever on the alert to change him over to writing with his other hand. This condition places the left-handed pupil under an emotional pressure which is detrimental both to his writing and his mental health.

The teacher can do much to relieve any emotional tension which may exist by adopting the attitude that it is immaterial which hand a pupil uses when writing. As Luella Cole has stated, the teacher "must regard a preference for the left hand over the right as no more disturbing than the possession of blue eyes instead of brown."[24] Such an attitude on the part of the teacher will reassure the pupil that he is a perfectly normal human being and will put him in the proper frame of mind to begin his penmanship instruction.

[23] F. D. Richardson, "Motivating Fluency in Penmanship," *School* (Secondary Edition), Vol. 27, December, 1938, pp. 316–319.

[24] Luella Cole, "Instruction in Penmanship for the Left-Handed Child," *Elementary School Journal,* Vol. 39, February, 1939, p. 437.

POSITION OF THE PAPER. It is most unnatural for a left-handed writer to hold his paper in the same manner as does a right-handed individual. The rule should be to hold the paper so that the bottom edge is approximately at right angles to the writing arm. Fig. 19 shows the correct positions for both left-handed and right-handed writers.

OTHER IMPORTANT DETAILS. The left-handed pupil should grasp his pen or pencil at least an inch or inch and one-half from the point. This is necessary in order that he may see what he is writing and keep from making a smear when ink is used. This precaution does not apply to the right-hander because in writing from left to right, his hand automatically stays out of the way of his vision and out of the way of the ink. Since the left-hander has no way of keeping his hand to the right of the material he is writing, his only alternative is to keep his writing hand well below the base line so that it will miss the longest loops.

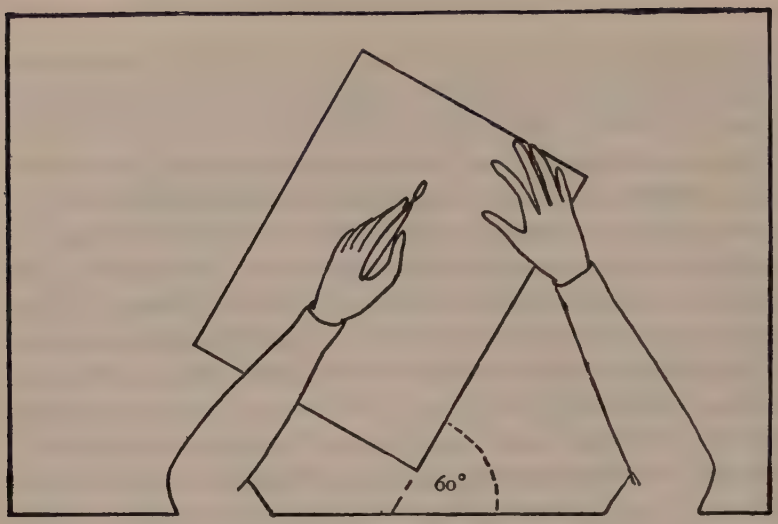
It is somewhat awkward for left-handed pupils to produce the same degree and type of slant in their writing as is typical for right-handers. With the paper placed as recommended for left-handers (see Fig. 19) the natural slant would tend to be backhand. Because of this fact, teachers should consider as acceptable, writing which is vertical or only very slightly backhand. Such writing, if carefully done, is legible and can be written with much greater facility by left-handers than can writing which must be slanted to the right. Extreme backhand writing, however, should be avoided because it is difficult to read.

Handwriting Manuals, Instruction Books, and Equipment

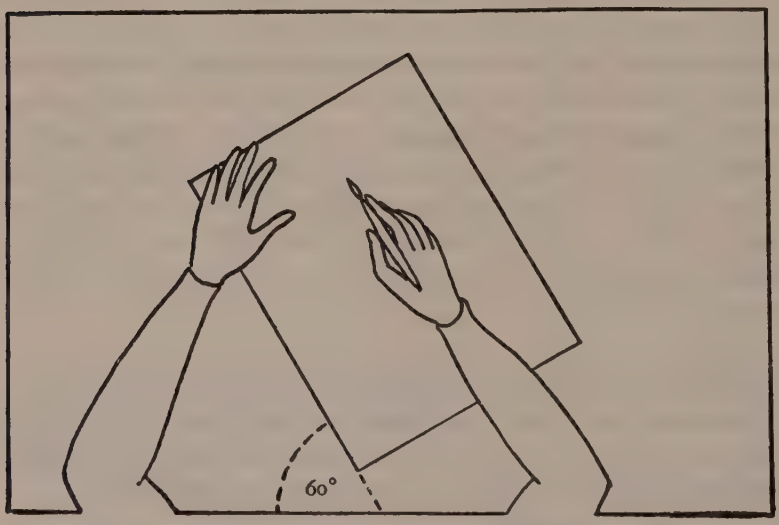
There are a number of handbooks and instruction books that deal with the improvement of handwriting which the teacher of remedial handwriting will find useful. A few of these are listed below:

Teachers' Handbook of Methods in Penmanship Instruction.[25] This booklet provides lesson plans and gives specific directions for carrying forward instruction in the Palmer method.

[25] Pearle I. Mallory, *Teachers' Handbook of Methods in Penmanship Instruction,* New York, The A. N. Palmer Company, 112 pp.



Position for left-handed writers



Position for right-handed writers

FIG. 19. CORRECT POSITIONS OF PAPER FOR LEFT-HANDED AND RIGHT-HANDED WRITERS

Penmanship Teaching Devices.[26] Many games, devices, and procedures are described which should aid in motivating handwriting instruction.

Handwriting Helps for Teachers.[27] This little book contains lesson plans, and many useful devices and suggestions for teaching penmanship. Among the devices and contests described are: "Airplane Race Between New York City and Paris," "Toe Dancer," "Lazy Pencil," and "Keep Moving."

The Zaner-Bloser Progress Record and Scale.[28] This workbook has been designed for use in grades 7 and 8, but can be utilized with pupils in senior high schools when the grade labels are removed from the cover. Its general purpose is as follows: (1) to motivate practice by showing weekly gain, (2) to make practice purposeful by showing faults that need to be corrected, (3) to provide teachers, pupils, and parents with a constant check on the pupil's progress, and (4) to place a usable scale in the hands of each pupil.

Functional Handwriting.[29] This handwriting manual provides pupils with detailed instructions for diagnosing and overcoming their defective handwriting habits. It can well be used as the basic handwriting textbook for defective writers in junior or senior high schools. Among the topics treated are the following:

Correct hand and pen position
How the hand moves in writing
Letter studies
Reference list of common errors in the form of letters and figures
The right and wrong way to make letters
How to find errors and correct them
How to find faults in slant
How to test for spacing
How to test for alignment
How to test for speed
Examples of handwriting used in school and everyday life

[26] Huzzard and McKelvie, *Penmanship Teaching Devices,* New York, The A. N. Palmer Company, 64 pp.

[27] The St. Paul Penmanship Club, *Handwriting Helps for Teachers,* New York, The A. N. Palmer Company, 127 pp.

[28] The Zaner-Bloser Company, Columbus, Ohio.

[29] John G. Kirk and Frank N. Freeman, *Functional Handwriting,* The Zaner-Bloser Company, Columbus, Ohio.

Correlated Handwriting (*Junior High School Manual*).[30] This handwriting exercise book contains a specimen of unsatisfactory junior-high-school writing as well as one of satisfactory penmanship. Complete instructions are also provided with respect to body position in writing, the angle of holding the paper, movement, rhythm, form, spacing, and letter formation.

New Laurel Handwriting.[31] A separate exercise book is provided for each of the school grades. The seventh book, for example, contains such topics as "correct position for desk writing," "pupil progress charts," "how letters join," "how to arrange your writing," "how to improve letters," and "how to improve speed."

Handwriting for Expression (Pupils Sixth Book, Diagnostic and Remedial Unit).[32] This manual contains a diagnostic handwriting score card and provides a program of remedial exercises in such essentials as neatness, line quality, slant, size, spacing, letter forms, and speed.

Equipment. The teacher of remedial handwriting should provide himself with the catalogs of the various penmanship supply companies. One of the largest of such institutions is the Zaner-Bloser Company of Columbus, Ohio. Among the useful materials described in their latest catalog are "penmanship records" and a "new diagnostic ruler." The penmanship records which can be used with any phonograph provide vocal and musical counts for making capitals and small letters. Their purpose is to motivate the instruction, and to develop ease, speed, and relaxation in writing. The new diagnostic ruler can be used in testing slant, legibility, alignment, letter formation, spacing, and size.

A Remedial Penmanship Program in a Junior High School

The experiment described here[33] was carried out at Clayton, Missouri. The penmanship supervisor first selected 42 pupils in grades

[30] Zaner-Bloser Company, Columbus, Ohio.

[31] Published by the Laurel Book Company, Chicago, Illinois.

[32] Published by the American Book Company, New York.

[33] James D. Logsdon and Dorothy Leggitt, "A Remedial Penmanship Program in a Junior High School," *School Review*, Vol. 47, May, 1939, pp. 363–373.

7, 8, and 9 who were deficient in handwriting ability. Half of these were required to practice on handwriting exercises for one 50-minute period a week in the adjustment room or at home. No regular supervision was given. The remainder of the 42 pupils practiced similar assignments during a special class period under the supervision of a competent teacher. A control group of 42 pupils received no penmanship instruction of any kind during the experiment. The experiment lasted for three months.

The remedial work in both the experimental groups as described by the authors was as follows:

> Each pupil became familiar with accepted standards; he determined the defects of his own writing; and he undertook to correct his faults through practice in writing. The exercises planned by the teacher were intended to eliminate specific faults and defects of the pupil's handwriting; they were based on slant, alignment, quality of line, letter formation, and spacing. The diagnosis by Miss Nystrom found in *Diagnostic and Remedial Teaching*[34] was extremely helpful, and the *Junior High School Manual* by Freeman[35] was likewise used with advantage.

At the beginning and at the end of the experiment, all groups (the two experimental and the one control) were tested by means of the *Ayres Measuring Scale for Handwriting* (Gettysburg Edition), and West's *American Handwriting Scale*. The end tests showed marked improvement to have taken place in the writing of pupils in both experimental groups with the group having the benefit of supervision making the greater gains. The control group made little gain, as was to be expected. The specific amounts of improvement shown by the respective groups were as follows:

GROUP	NUMBER OF POINTS GAINED IN QUALITY	GAIN IN NUMBER OF LETTERS WRITTEN PER MINUTE
Supervised experimental	28.57	10.96
Unsupervised experimental	18.57	7.38
Control	4.04	3.81

[34] L. J. Brueckner and E. O. Melby, *Diagnostic and Remedial Teaching,* Boston, Houghton Mifflin Company, 1931, pp. 427–429.

[35] Frank N. Freeman and the Zaner-Bloser Company, *Correlated Handwriting: Junior High School Manual,* Columbus, Ohio, Zaner-Bloser Company.

The authors of this study drew a number of conclusions from their experience with the handwriting groups. Seven of these are:

1. There is need in the junior high school for remedial instruction in penmanship.
2. Improvement may be made over a comparatively short period of time without impeding progress in the other subjects of the curriculum.
3. Girls tend to be more proficient than boys in penmanship.
4. Left-handedness tends to be a cause of poor writing ability.
5. Quality more often than speed is a cause of failure in handwriting.
6. Uniformity of slant and letter formation are quality characteristics most difficult of attainment.
7. Pupils progress more rapidly if practice in handwriting is done under supervision.

Remedial Handwriting Programs in Senior High Schools

Senior high schools throughout the country are beginning to set up programs of instruction for the pupils whose writing falls below a satisfactory level of proficiency. That this is the case can be seen from the following direct quotations taken from letters which the writer received in connection with his survey of remedial methods in senior high schools.

Roosevelt High School, Oakland, California: "We have now a teacher who devotes one period a day to remedial penmanship."

San Diego Senior High School, San Diego, California: "This semester we are evaluating the handwriting of all students who are just finishing the eleventh grade. Individuals who are markedly deficient are enrolled in instructional units in handwriting conducted by our commercial department and in remedial English classes during their welfth year."

Castlemont High School, Oakland, California: "Handwriting for those below 60 on the Ayres scale is taught in remedial penmanship classes which meet daily."

High School of Commerce, Portland, Oregon: "We offer two terms of penmanship to freshmen who need it. Frequently advanced students transferred from other schools are advised to take a term of

penmanship. We also attempt to have every teacher in the school demand good penmanship from the pupils in their written work."

Portsmouth High School, Portsmouth, Ohio: "Handwriting in our school is emphasized in the Commercial course where students are required to make a score of 80 per cent on the Zaner-Bloser scale or else take a course in penmanship daily for one semester."

Thomas Jefferson High School, Brooklyn, New York: "The A. N. Palmer text and drills are prepared for practice at home. These are checked and graded."

Tilden Technical High School, Chicago, Illinois: "Pupils rate themselves by the Ayres handwriting scale or the Freeman scale. This plan stimulates them to do better. In extreme cases the teacher gives lessons in letter formation and fundamentals of writing."

The handwriting program established in the Masters School, Dobbs Ferry, New York, is described in a little booklet entitled, *Improving the Handwriting of High School Students.*[36] Each pupil in this school is given a handwriting test which evaluates both quality and speed. Those who are markedly deficient in either of these attributes are selected for remedial instruction. Small groups of approximately ten pupils each are formed which meet once per week during study periods. Pupils remain in the remedial classes until they overcome their specific writing disabilities. Before the teacher begins the remedial work, a careful analysis is made of each pupil's writing habits. Attention is given to his posture, writing equipment, coordination, drive, rhythm, visual control, slant, size of writing, spacing, alignment, and letter formation. The remedial treatment is on an individual basis. A folder is kept for each pupil which contains personal data and dated handwriting specimens. According to the author, great improvement is shown by pupils who participate in the remedial activities provided. One pupil, for example, after six months instruction, made a gain of 200 per cent in quality of writing without reducing

[36] Harriet H. Shoen, *Improving the Handwriting of High School Students,* Teachers' Lesson Unit Series, No. 52, New York, Bureau of Publications, Teachers College, Columbia University, 23 pp.

his speed. Other pupils made outstanding gains both in speed and quality of penmanship.

Summary

Much poor handwriting can be found among pupils in our schools. Some of this deficiency can, no doubt, be attributed to the fact that schools of all levels in recent years have placed less emphasis upon handwriting than formerly. The widespread use of typewriters and printing presses has to a large extent made fancy writing and perfect penmanship unnecessary. The need for legibility in writing, however, still remains.

Several investigations have shown that a proficiency level equal to qualities of 60 or 70 on the Ayres scale is sufficient to meet the demands of most life situations requiring handwriting. Pupils falling below this minimum standard of competence should receive sufficient diagnostic and remedial treatment to bring them up to this level.

The two major causes of disability in handwriting are (1) deficiencies in the mental or physical equipment of the pupil, and (2) inadequacies of instructional methods. In most instances the latter cause plays the chief role.

The specific handwriting weaknesses of pupils can be identified by utilizing one or more of the excellent diagnostic handwriting charts which are available. Aspects of handwriting which should be particularly noted are uniformity of slant, uniformity of alignment, quality of line, letter formation, and spacing.

The remedial teaching which follows the diagnosis should, for the most part, be on an individual basis. Instead of working on general exercises, each pupil should concentrate his efforts upon correcting his own particular handwriting faults. Left-handed individuals may need especial attention and supervision in order to overcome their difficulties.

Many schools are now providing remedial instruction in handwriting. Evidence is available that such programs may be highly effective in removing handwriting deficiencies of the pupils participating in them.

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Film

Improve Your Handwriting (Grades 7–9, black and white or color), Chicago, Illinois, Coronet Films.

Chapter 12

Remedial Work in the Fundamentals of English

The field of English can be thought of as divided into two main parts—a "reading-literature" division and a "language-composition" division. In an earlier section of this book, the one on remedial reading, extended attention was given to instruction in the area covering the first of these two divisions. In this chapter the discussion will be directed toward remedial work in the language-composition phase of English.

Pupils not only need to know how to read to satisfy the demands of life, but they must also be able to speak and write effectively. The degree of proficiency needed in these basic skills of English obviously varies from individual to individual. Pupils planning to follow literary careers, for example, will need to develop certain abilities in the use of language which would be unnecessary for those planning to enter mechanical fields. Every individual in a democracy, however, has frequent need to communicate both orally and in writing with other members of the group. It is therefore desirable that all pupils finishing our schools master the most fundamental aspects of these two phases of English expression.

Most Frequent Errors in Oral English

A number of investigations have been conducted in an effort to discover the types of errors pupils make in oral English. The teachers of every department in the Fort Hill High School, Cumberland, Mary-

land, cooperated in taking an inventory of oral English errors committed by their pupils.[1] For one week, all errors were jotted down by the teachers. It was found, when the data were tabulated, that 77 per cent of the errors involved verb forms—wrong verb, confusion of

TABLE XXV

Errors in Verb Forms Made by Pupils

7TH GRADE (87%)*	8TH GRADE (73%)	9TH GRADE (90%)	10TH GRADE (84%)	11TH GRADE (62%)	12TH GRADE (70%)
you was	I seen	can-may	ain't	come-came	ain't
I seen	ain't	done-did	come-came	They was	don't
done for did	don't-doesn't	ain't	don't-doesn't	done	I seen
We was	You was	don't-doesn't	have saw	You was	have saw
They was	done-did	We was	can-may	I seen	has rang
ain't	We was	has went	brung	can-may	have did
has went	Was you?	has rang	I seen	is-are	is-are
knowed	knowed	is-are	You was	Use of lie	sit
can-may	has rang	burst	set-sat	learn	set
don't-doesn't	have saw	learn-teach	has went	have saw	done-did
come-came	can-may	Was you?	We was	We was	fall
Use of *sit*	Use of lie	have saw	have did	eat	can-may
Use of *eat*	have did	have did	Was you?	sit	drawed
learn-teach	has went	Use of lie	They was	burst	blowed
Use of *lie*	come-came	Use of sit	come-came	done	
have saw	learn-teach	Use of set	burst	written	
rang-rung	is-are	Use of fall	knowed		
brung	set-sat	Use of eat	is-are		
set-sat	burst	knowed	Use of lie		
burst	done finished	come-came	Use of sit		
is-are	use of eat	You was	He says		
Use of *fall*		git	throwed		
done-did		give-gave	took and		
take and do					
have took					
find-found					

* This indicates that the errors listed constitute 87 per cent of all oral English errors made by the pupils in Grade 7.

past and past participle, failure of verb to agree with its subject in person and number, and wrong tense form. Of the remaining types of errors, 9 per cent were due to use of double negatives, 5 per cent to improper pronoun usage, 4 per cent to use of the expression

[1] This study was described in a letter to the author.

"where's it at?" and 5 per cent were of a miscellaneous variety. Some of the errors in the miscellaneous group were: *most* for *almost, jest* for *just, that there, wait on me, off of, youse, git,* and *this here.*

Table XXV shows the specific verb errors which were made by the pupils in the respective grades. The errors are listed in the order of frequency of occurrence.

Lyman[2] has analyzed the types of errors in oral English found by investigators who conducted studies among elementary-school children in Kansas City; Bonham, Texas; Columbia, Missouri; Detroit; Hibbing, Minnesota; and Pittsburgh. He shows that 49 per cent to 62 per cent of the errors involve verb forms, 9 per cent to 21 per cent involve syntactical redundancy, 10 to 14 per cent of the errors involve pronouns, 8 per cent to 14 per cent consist of double negatives, 1 to 6 per cent are due to confusion of adjectives and adverbs, 0 to 1 per cent are due to confusion of prepositions and conjunctions, and 0 to 1 per cent of the errors come from misplacing modifiers.

Lyman[3] also lists the 17 most common errors in oral English which were found among school children in Connersville, Boise, Kansas City, and Consolidated Schools of Iowa. They are as follows:

1. *Ain't, hain't*
2. *Saw* and *seen* (confusion)
3. Plural subject with singular verb
4. Double negative
5. *Have got*
6. *Come* and *came* (confusion)
7. *Git*
8. *Them* and *those* (confusion)
9. *Teach* and *learn* (confusion)
10. *Can* and *may* (confusion)
11. *Do, did, done*
12. *And* for *to* with infinitive
13. *Shall* and *will*
14. *Go, went, gone*
15. Subject of verb not in nominative case
16. *I and my brother*
17. Frank and *me* in nominative case

It is clear from the data which have been presented that errors in verb forms make up a large part of the oral English errors of pupils.

[2] R. L. Lyman, *Summary of Investigations Relating to Grammar, Language, and Composition,* Supplementary Education Monographs, No. 36, Chicago, The University of Chicago, 1929, p. 72.

[3] *Ibid.,* p. 74. This list is taken from G. M. Wilson, "Locating the Language Errors of Children," *Elementary School Journal,* Vol. 21, December, 1920, pp. 290–296.

Other errors such as confusion of prepositions and conjunctions are relatively rare. The teacher can perhaps use group methods of remedial teaching in connection with errors which are extremely frequent while individual instruction should be the rule when dealing with the less frequent types.

What Errors in Oral English Are Most Objectionable

The frequency of an error is not always indicative of its seriousness. For example, in the list of the 17 most common errors which was just presented we find confusion of *shall* and *will* occupying a high ranking position. Few people, however, would consider the expression "I will come in the morning" (expressing simple futurity) as objectionable as "He give me the money, yesterday," even though this latter type of error is less common than the former.

Teachers of remedial English should concentrate their efforts first upon eliminating serious errors in the oral English of their pupils rather than upon those errors which are less serious and of a borderline variety. In this connection mention should be made of the illuminating study of Sterling A. Leonard.[4] The object of this study was to "find out what various judges have observed about the actual use or nonuse by cultivated persons of a large number of expressions usually condemned in English textbooks and classes."

A list of 230 expressions "of whose standing there might be some question" was submitted to 30 eminent linguists who classified each expression as "formally correct or literary English," "informally correct, cultivated English," or "illiterate, popular English." The data collected show that 107 of these 230 expressions were accepted by 75 per cent or more of the linguists as constituting satisfactory informal oral or written discourse. Twenty-five of these 107 expressions which were approved (rated "established") by the linguists but which are frequently condemned by grammarians and rhetoricians are given below. Expressions such as these should receive less attention or per-

[4] For details of this investigation see Albert H. Marckwardt and Fred G. Walcott, *Facts About Current English Usage*, English Monograph No. 7, National Council of Teachers of English, New York, D. Appleton-Century Company, Inc., 1938, pp. 1–12 and 65–137.

haps no attention in corrective work until more serious errors have been eliminated.

We *got home* at three o'clock.
We will *try and get* it.
In hopes of seeing you, I asked . . .
It says in the book that . . .
We *only* had one left.
It is *me*.
Who are you looking for?
Invite *whoever* you like to the party.
Drive *slow* down that hill!
I will go, *providing* you keep away.
I have *got* my own opinion on that.
He made a *date* for next week.
My father walked very *slow* down the street.
There *was* a bed, a dresser, and two chairs in the room.
They invited my friends and *myself*.
It is now *plain and evident* why he left.
I wish I *was* wonderful.
I've no doubt *but what* he will come.
What was the reason for *Bennett making* that disturbance?
Can I be excused from this class?
Haven't you *got through* yet?
Everyone was here, but *they* all went home early.
My *folks* sent me a check.
He came *around* four o'clock.
If it had been *us*, we would admit it.

Wilson[5] in an early study sought "to determine the relative degree of heinousness of each of the 20 most frequent grammatical errors found in the oral English of school children." For this purpose he used the judgments of 50 teachers, 40 college students, 50 high-school pupils, 13 members of a writer's club, and 22 businessmen. After the judgments were averaged it was found that the ten most objectionable errors were: (1) *have went*, (2) *ain't*, (3) *couldn't never*, (4) *seen* for *saw*, (5) *done* for *did*, (6) *learn* for *teach*, (7) *that there*, (8) Frank and *me*, (9) *is* for *are*, and (10) *them* for *those*. These ten

[5] M. A. Wilson, *Persistency of Error in the Use of the English Language by School Children*, Master's Thesis, University of Southern California, 1923.

errors are obviously most glaring and should be eliminated from the speech of pupils.

What constitutes a serious error in English depends to a great extent upon the time and place at which it is used. What may be acceptable in one situation may be totally unacceptable in others. This idea is well stated by Reed in the following words: "What is appropriate in English depends upon the situation in which the language functions. The standards of correctness are, and no doubt should be, different for an English classic, a textbook, a typewritten business letter, an informal letter to a friend, and an informal conversation with friends."[6] Keeping this in mind, teachers should allow for flexibility in the use of the English language. Furthermore, standards of accuracy and exactness which are set for one pupil may be totally inappropriate for another. The pupil's ability, home background, previous experiences, and future plans should all play a part in any decision which may be made concerning his need or lack of need of specific remedial work in English usage.

Errors in Written Compositions

Many of the errors which are apparent in a pupil's oral use of English can also be found in his written work. However, the overlapping of errors between spoken and written English is by no means complete. In written English, for example, opportunity is provided for pupils to commit errors of punctuation, capitalization, and paragraphing which do not show in oral English.

The types of errors which high-school pupils make in their English compositions are revealed in a study which was carried out in Quincy, Illinois.[7] A ninth-grade teacher of English analyzed all themes which were written under her supervision during an eight-week period beginning October 28, and ending December 21. A total of 1112 themes written by 147 pupils were turned in to the teacher who checked and classified the errors.

[6] H. B. Reed, *Psychology and Teaching of Secondary School Subjects*, New York, Prentice-Hall, Inc., 1939, pp. 93–94.

[7] This unpublished study was conducted by Mae Ehrhart, a ninth-grade English teacher in Quincy.

The results of the study are presented herewith under the headings of punctuation errors, capitalization errors, errors of sentence structure, and grammatical errors.

Errors in Themes of Ninth-Grade Pupils in Quincy, Illinois

PUNCTUATION ERRORS

TYPE OF ERROR	FREQUENCY	PER CENT
1. Errors involving commas	353	52.7
2. Errors involving apostrophes	69	10.3
3. Errors involving colons	57	8.5
4. Errors involving periods	50	7.5
5. Errors involving quotation marks	50	7.5
6. Errors involving syllable division	39	5.8
7. Errors involving semicolons	33	4.9
8. Errors involving question marks	16	2.4
9. Errors involving exclamation points	3	.4
Total	670	100.0

CAPITALIZATION ERRORS

TYPE OF ERROR	FREQUENCY	PER CENT
1. Incorrect use of capital letters for common nouns	52	18.7
2. Failure to capitalize the first word of a sentence	48	17.4
3. Failure to capitalize proper adjectives	46	16.6
4. Failure to capitalize proper nouns	41	14.8
5. Failure to capitalize the first word of a direct quotation	37	13.4
6. Incorrect use of capital letters to begin the names of the seasons	31	11.1
7. Failure to capitalize titles	17	6.1
8. Failure to capitalize O when it stands alone	5	1.8
Total	277	99.9

ERRORS OF SENTENCE AND PARAGRAPH STRUCTURE

TYPE OF ERROR	FREQUENCY	PER CENT
1. Run-on sentences	112	29.6
2. Dependent clauses written as sentences	63	16.7
3. Misplaced modifiers	61	16.1
4. Double subject used in sentence	52	13.8
5. A phrase written as a sentence	42	11.1
6. Paragraph dealing with more than one subject	29	7.6
7. Subject omitted from sentence	19	5.0
Total	378	99.9

GRAMMATICAL ERRORS

TYPE OF ERROR	FREQUENCY	PER CENT
1. Errors involving verbs	385	30.6
2. Errors involving pronouns	372	29.5
3. Errors involving prepositions and conjunctions	194	15.4
4. Errors involving nouns	175	13.9
5. Errors involving adjectives and adverbs	133	10.6
Total	1259	100.0

The data amassed in the Quincy study reveal a wide variety of errors in written English. Certain trends, however, can be noted. By far the most frequent of the punctuation errors is the failure to use commas properly. Among the capitalization errors, the most frequent type is the use of capital letters for common nouns. Run-on sentences constitute the most numerous type of sentence-structure errors. Of the grammatical errors, the misuse of verbs is the most frequent with errors involving pronouns running a close second.

Every teacher of remedial English might well conduct a similar study in his own classes in an effort to discover the characteristic errors of his pupils. The data obtained from such a survey can be used to good advantage in planning the program of instruction. Errors common to large numbers of pupils can be handled in group fashion while those errors causing trouble to relatively few pupils can be handled on an individual basis.

A study of the grammatical errors made in free composition by junior-high-school pupils was carried out in Los Angeles.[8] Approximately 29,000 pupils were asked to write a friendly letter of three paragraphs telling about (1) some interesting event that recently happened at school, (2) something that would especially interest the friend to whom the letter was written, (3) the writer's plans for the summer. Twelve hundred of these papers were analyzed and a tabulation was made of the different types of errors. It was found that

[8] Grace S. Rodgers, "A Critical Study of the Grammatical Errors of Junior High School Pupils," *Journal of Applied Psychology*, Vol. 16, August, 1932, pp. 421–426.

82.9 per cent of all errors could be classified under the following 24 headings:

1. Capitals with proper nouns and adjectives
2. *Will* for *shall* and vice versa
3. Misuse of verbal contractions
4. Use of needless adverb
5. Omission of preposition
6. Misuse of possessive case
7. Misuse of *to get*
8. Misuse of number
9. Use of terminal preposition
10. Misuse of *to go*
11. Use of *sure* for *surely*
12. Omission of article
13. Failure to use infinitive
14. Misuse of abbreviations
15. Misuse of *lot* and *lots*
16. Use of figures for numbers
17. Omission of the subject
18. Wrong preposition
19. Use of adjective for adverb
20. Misuse of past tense
21. Misplaced adverb
22. & for *and*
23. Misuse of perfect tense
24. Misuse of present tense

Such a list of typical errors can suggest to the teacher types of mistakes that are likely to be made. A separate list of errors for each pupil should, however, be assembled if adequate remedial instruction is to be carried forward.

Diagnostic Tests in English

The teacher can detect many of the errors in English which his pupils commit by analyzing their oral and written compositions. To supplement information gained in this way, he may also use specially constructed diagnostic tests of English usage. Several well-known and useful tests will be briefly described.

Barrett-Ryan-Schrammel English Test.[9] This test, which has been prepared for use in grades 9 to 12 and in college, purports to measure proficiency in punctuation, diction, sentence structure, and the rudiments of grammar. Three equivalent forms—A, B, and C are available. The test is so constructed as to permit the use of machine scoring if this is desired. In order to elucidate further the nature and mechanics of this test, the directions accompanying the various parts are presented herewith.

PART I. SENTENCE STRUCTURE AND DICTION

In the following paragraphs some expressions are underlined. (The expression may be a word or a group of words.) If the expression is rightly used and rightly placed, make a heavy mark like this ▮ in the space between the dots under R on the Answer Sheet. If the expression is either wrongly used or wrongly placed, make a heavy mark in the space under W on the Answer Sheet, as shown in the sample.

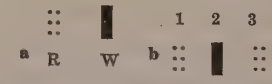
Sample. Even though (a) you don't succeed at first you had ought (b) to try again.

PART II. GRAMMATICAL FORMS

In each numbered part of the story below there is an underlined word. Some of these underlined words are right and some are wrong. If a word is right make a mark under R on the Answer Sheet. If the word is wrong, as shown in the sample below, make a mark under W. Then look at the three items numbered 1, 2, and 3, one of which names the correct form to be used. Only one of these items is the right explanation. Choose the right one, and make a mark on the Answer Sheet under the number of that item.

Sample a. Who done the work on the blackboard yesterday?

b. 1. past participle
2. past tense
3. present tense

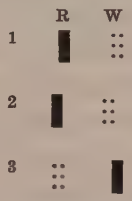


[9] Published by the World Book Company, Yonkers-on-Hudson, New York.

PART III. PUNCTUATION

Notice that certain punctuation marks in this story are underlined. If all the underlined punctuation marks in a line are right, make a mark under R on the Answer Sheet for that line. If any of the underlined punctuation in a line is wrong, make a mark under W for that line. (If a blank space is underlined, count the punctuation as right if no punctuation belongs there, and wrong if there should be some punctuation there.)

The first three lines of this section properly marked are as follows:



1. Allan Ross, who lived on a small farm,
2. was a nine-year-old boy who was full of life.
3. As he was the only boy in the family; he

Norms for this test are given in terms of percentile scores for grades 9, 10, 11, 12, and for college Freshmen. Grade norms below grade 9 or above the college Freshman level are not provided.

Tressler Minimum Essentials Test.[10] This test, which comes in three equivalent forms, measures grammatical correctness, vocabulary, punctuation and capitalization, the sentence and its parts, sentence sense, inflection and accent, and spelling. Grammatical correctness is measured by such items as:

She looks (1) *beautiful* (2) *beautifully* in a white dress. ——
(The pupil is to write the number of the correct answer on the line at the right of the sentence.)

Punctuation and capitalization are measured by having the pupil perform punctuation and capitalization in such sentences as:

Leaning on the arm of an officer of the guard mary stuart descended the great staircase to the hall

The section on inflection and accent contains such items as the following:

(On each dotted line write the verb asked for.)
The dog . . . . . his leg. (past perfect active of *bite*)

[10]Published by the Public School Publishing Company, Bloomington, Illinois

Place the accent mark at the end of the accented syllable of each of these words:

op po nent
the a ter

Norms for the end of each grade from 8 to 12 are provided for the individual tests as well as for the test as a whole. The test is easy to give and easy to score. Its chief weakness lies in the fact that the various sections are too short to ensure a high degree of reliability or to uncover any large number of errors. Because of this, it must be supplemented by other tests in order to complete a diagnosis.

Rinsland-Beck Natural Test of English Usage.[11] This test was constructed because the authors were skeptical of the validity of English tests which employ proofreading, error-checking, and multiple-choice forms. It is their belief that the completion type of question gives the truest measure of a pupil's ability to use English properly. Some of the items taken from Form A of the test are as follows:

Write the date of your birth. .....
Question: Are you feeling dizzy?
Answer: No, ... not. (Pupil is instructed to use only one word.)
Mr. Walters the ..... brings sister a letter every day. (Instructions are to use only one word and to punctuate the sentence.)

Percentile norms are provided for the high-school Senior and college Freshman levels. Each of the two forms of the test covers the areas of mechanics, grammar, and rhetoric.

Cooperative English Test, Test A: Mechanics of Expression, Form Q.[12] This widely used test can be secured in either hand-scoring or machine-scoring forms. It contains three parts: Part I, Grammatical Usage; Part II, Punctuation and Capitalization; and Part III, Spelling. The nature of the test can be seen from the directions which are given for each of the parts. Percentile norms are available for each school grade from 7 to 12.

[11] Published by Public School Publishing Company, Bloomington, Illinois.
[12] Published by the Cooperative Test Service, 15 Amsterdam Avenue, New York City.

PART I

GRAMMATICAL USAGE

(15 minutes)

Directions: Read each sentence and decide whether there is an error in usage in any of the **underlined** parts of the sentence. If so, note the number printed under the **wrong** word or phrase, and put this number in the parentheses at the right. If there is no usage error in the sentence, put a zero (0) in the parentheses.

No sentence has more than one error, and some sentences do not have any errors. The sentences are to be judged on the basis of suitable usage for general written English.

Samples:

8. He says that he ain't coming home with us today .....8(2)
1 2 3 4

In this sentence, ain't is wrong. The number printed below this word, 2, is therefore written in the parentheses.

9. She isn't ready to go home. .....9(0)
1 2 3

In this sentence, there is no error in any of the underlined words. A zero is therefore written in the parentheses.

PART II

PUNCTUATION AND CAPITALIZATION

(15 minutes)

Directions: First read each sentence through to get its meaning. Then, at each place where there is a number below the sentence, decide what punctuation, if any, is needed at that place. In the column at the right, following the number corresponding to the place in the sentence, make a ring around the punctuation you consider correct for that place (enclosing also the small number above the punctuation), as in the sample below. "N" means "no punctuation."

Sample:

We came home yesterday
8 9

	1	2	3	4	5
8	N	,	.	;	
9	N	,	.	;	?

In the sample, at the place in the sentence marked 8, no punctuation is required. You would therefore encircle the N in row 8, as shown. At the

place marked 9, a period is needed. A ring has therefore been drawn around the period in row 9 in the column of punctuation marks.

Directions: After reading each sentence below, study each word which has a number printed under it. If you think the word should be capitalized, make an **X** in the parentheses at the right opposite the number of the word. If you think the word should begin with a small letter, do NOT make any mark in the parentheses opposite its number.

Some words which should be capitalized do not have numbers under them. Do not worry about such words. You are to be concerned only with the numbered words.

Sample:

His name is henry.	8( )
8 9	9(**X**)

PART III

SPELLING

(10 minutes)

Directions: In each of the following groups of words, select the word that is misspelled and put its number in the parentheses at the right. If you think all four words in the group are correctly spelled, indicate that there is none wrong by putting a zero (0) in the parentheses at the right.

The Pribble-McCrory Diagnostic Tests in Practical English.[13] Test I of this series is for grades 7 and 8 while Test II is specifically designed for grades 9 to 12. Each test has three equivalent forms. Test I contains 127 items and Test II contains 174. These items were selected on the basis of studies which revealed the most troublesome points in English. The tests are easy to administer and easy to score. The time required for Test I (for grades 7 and 8) is 30 minutes; for Test II (grades 9 to 12), 40 minutes. Norms are provided for each grade.

Cross English Test.[14] This test is in eight parts and covers spelling, pronunciation, recognizing a sentence, punctuation, verb forms, pronoun forms, idiomatic expressions, and miscellaneous faulty expressions. Percentile norms are provided for grades 8, 9, 10, 11, 12, and 13. The testing time is 45 minutes.

[13] Published by Lyons & Carnahan, Chicago.
[14] Published by World Book Company, Yonkers-on-Hudson, New York.

Guiler and Henry's Diagnostic Tests and Retests.[15] This battery of instructional diagnostic tests has been prepared to accompany Guiler and Henry's workbook entitled *Remedial English,* Revised Edition. The tests identify errors, and the workbook provides exercises designed to correct these errors. Retests are given following the remedial work to see whether or not the objectives have been accomplished. Separate diagnostic tests are provided for the following areas: Punctuation; capitalization; sentence structure; verbs; nouns, pronouns, and possessive forms; modifiers; unity; coherence; clearness; and diction.

Wilson Language Error Test.[16] Two equivalent forms of this test are available—Test I and Test II. Each of these forms consists of three stories which contain errors to be corrected. There are 28 errors in each story. Pupils are instructed to draw a line through each wrong word and to write the correct word above it. A pupil's score on the test depends upon the number of errors he is able to discover and correct. Norms are given for each grade from 3 to 12.

California Language Test.[17] Tests are available for grades 1–3, 4–6, 7–9, and 9–14. Each form is divided into two major tests, Mechanics of English and Grammar, and Spelling. The first major test is in turn divided into sections giving part scores for diagnostic purposes. The time required for administration varies from 16 to 31 minutes.

Pressey Diagnostic Tests in English Composition.[18] This diagnostic battery is especially prepared for pupils at the junior- and senior-high-school levels. It consists of a *Capitalization Test, Punctuation Test, Grammar Test,* and *Sentence Structure Test.* Each of these tests can be purchased separately if desired. For convenience in analyzing results, the test items have been grouped according to the rules of English they exemplify. A special record form makes possible accu-

[15] Published by Ginn and Company, Boston.
[16] Distributed by C. A. Gregory Company, Cincinnati, Ohio.
[17] Published by California Test Bureau, Los Angeles, California.
[18] Published by Public School Publishing Company, Bloomington, Illinois.

rate diagnoses of individual and class difficulties. Four forms of each test are published.

Other tests which can serve useful purposes in diagnosing specific pupil errors in English are:

Essentials of English Tests (Grades 7 to 12) Minneapolis, Educational Test Bureau.

Iowa Every-Pupil Test of Basic Skills—Advanced Test C: Basic Language Skills (Grades 5 to 9), Boston, Houghton Mifflin Company.

Iowa Language Abilities Test (Grades 4–7, and 7–10), Yonkers-on-Hudson, World Book Company.

Language Essentials Tests (Grades 4 to 8), Minneapolis, Educational Test Bureau.

Nelson High School English Test (Grades 7–12), Boston, Houghton Mifflin Company.

The Clapp-Young English Test (Grades 5 to 12), Boston, Houghton Mifflin Company.

Causes of Disability in Oral and Written English

Many of the causes of disability in oral and written expression are similar to those found to be operative in producing special disability in other school subjects. These include physical ailments, inferior scholastic aptitude, lack of interest, and previous failure. Other important causes are poor language usage in the home or community, lack of knowledge as to what constitutes good English, and lack of sufficient practice on correct language forms. The teacher should take all these factors into account in making a diagnosis.

The effects of poor language in the home upon a pupil's use of English are obvious and far-reaching. With respect to this point Reed makes the following comment: "The child learns to speak the language of his parents. When he goes to school or into the community, he has few means of expression except those which he has learned at home. Even after he enters school, he spends more hours at home than he does at school. Even if the school teaches correct forms, its influence is usually not strong enough to counteract the strength of his previously formed habits."[19]

[19] Homer B. Reed, *Psychology of Elementary School Subjects*, Revised Edition, Boston, Ginn and Company, 1938, pp. 186–187.

What has been said about poor language patterns in the home is to a large extent true of similar language habits used in the community. There are communities which have an unfavorable attitude toward the use of good English. Anyone who attempts to speak correctly is considered a "highbrow." Under such conditions the obvious tendency is for the pupil to conform to the speech standards of the social group of which he is a part.

Despite these obstacles, the school can do much to improve the habits of English usage which pupils from underprivileged homes and communities bring to school. In doing this, it is necessary for the school to develop in such pupils new sets of values and goals. Association in school with other pupils who use good English will contribute much toward bringing this outcome to realization.

A study by Pressey[20] has clearly shown that many ninth-grade pupils make mistakes in capitalization because they have no rules to guide them. One pupil, for example, wrote "God Bless you." When questioned about this, he argued that since "God" was capitalized, and since "Bless" went with "God" it should also be begun with a capital letter. Another pupil wrote "Pirates" with an initial capital letter on the ground that pirates were real people just as much as "John Silver" or "Captain Kidd." Other pupils capitalized all words they wanted to emphasize. A little remedial work with this group dealing with basic rules of capitalization would, no doubt, have eventuated in the elimination of many of these errors.

Pupils are frequently unaware of the errors they commit. Many cures can be affected by merely pointing out to a pupil his specific errors, and suggesting the correct modes of expression.

The chief cause of deficiency in oral and written expression is probably *lack of experience and practice in using correct forms.* Pupils use those expressions they have used before. It is therefore of the utmost importance that they be given as little opportunity as possible of perpetuating their errors by practicing them. A major function of the

[20] S. L. Pressey and Pera Campbell, "The Causes of Children's Errors in Capitalization: A Psychological Analysis," *The English Journal,* Vol. 22, March, 1933, pp. 197–201.

instruction in remedial English is to provide opportunities for pupils to use the "new" and correct forms. In doing this, the teacher should help the pupil to apply William James's second maxim for habit formation—"Never suffer an exception to occur till the new habit is securely rooted in your life."[21]

What Are the Minimum Essentials of English Which Every Pupil Should Know and Use?

By using diagnostic tests and by analyzing the oral and written compositions of pupils, the teacher will be able to identify the characteristic errors of each pupil as well as those of an entire class. All of these errors, however, will not be equally serious or objectionable. Some may be so trivial as to warrant no attention. It was pointed out earlier in this chapter that remedial work in English usage should concern itself first with teaching the most fundamental facts and principles before becoming involved in the intricacies and niceties of expression. When one hears Winston Churchill state with determination "We shall win the war," and the late President Roosevelt reply with equal force "It will be done,"[22] it hardly seems necessary to spend much time in our remedial English classes discussing the distinction between *shall* and *will.* What has just been said about *shall* and *will* is equaly applicable to *should* and *would.* There are a large number of forms and expressions in the English language which fall in what might be called a "controversial" area.[23]

What then are the fundamentals which every pupil should know? O'Rourke[24] reports an investigation which sought to answer this question. Two-hundred-twenty-one teachers of English were asked to rate the relative importance of one hundred phases of usage com-

[21] William James, *Talks to Teachers,* New Edition, New York, Henry Holt and Company, Inc., 1939, pp. 68–69.

[22] Reported by Marion H. Ranton in "Teaching Correct English Usage," *The School* (Elementary Edition), Vol. 30, March, 1942, p. 600.

[23] See Albert H. Marckwardt and Fred G. Walcott, *Facts About Current English Usage,* New York, D. Appleton-Century Company, Inc., 1938.

[24] L. J. O'Rourke, *Rebuilding the English-Usage Curriculum to Insure Greater Mastery of Essentials,* Washington, D.C., The Psychological Institute, 1934.

monly taught. Each phase was rated by the teachers as being "essential," "a nicety," or "least essential." As a result of this study, O'Rourke[25] has drawn up a list of minimum essentials which should receive primary attention. The items on the list follow a definite sequence. Those appearing first should receive attention prior to those following later. Three factors were considered in determining this sequence: (1) the practical utility of each phase, (2) the difficulty of each phase of usage, and (3) the relation of each phase to other phases.

This most important list of essential phases of English usage is presented in full. Asterisks indicate phases of usage that apply to written work only.

Sentence recognition
Sentence development
*Capitalization: first word in a sentence
*Punctuation: period
*Punctuation: question mark
*Capitalization: names of persons
*Capitalization: initials
*Capitalization: *I*
Use of *I* with name words: John and *I*, Mary and *I*, My brother and *I* (not *me*), *John and I* (not *I and John*)
*Capitalization: names and places
Pointing words: *these* and *those* (not *them*)
Correct use of *came* and *come*
Correct use of *saw* and *seen*
Correct use of *did* and *done*
Correct use of *went* and *gone*
Correct use of *ran* and *run*
Correct use of *sit* and *set*
Correct use of *let* and *leave*
Correct use of *doesn't* and *don't*
Correct use of *is* and *are*, especially *you are*
Correct use of *was* and *were*, especially *you were* and *they were*
Words that say "No" (*not, n't, none, nothing, no one, nobody, nowhere*)
Correct use of *teach* and *learn*
*Capitalization: names of days and months

[25] *Ibid.*, pp. 97–98.

*Punctuation: period following abbreviations of days and months
*Punctuation: comma in dates
*Capitalization: names of holidays
Use of *himself* and *themselves* (not *hisself* and *theirselves*)
Correct use of *eat, ate,* and *eaten*
Use of *this* and *that* (not *this here* and *that there*)
Avoiding unnecessary words, as, my brother *he*
*Punctuation: comma (or colon) after salutation of a letter
*Punctuation: comma after friendly close of a letter
*Capitalization: *Doctor, Street, Avenue, Dr., St., Ave.*
*Punctuation: comma in address
Correct use of *there is* (*was*) and *there are* (*were*)
*Capitalization: titles of books, poems, etc.
*Capitalization: first word in each line of poetry
Correct use of *give, gave,* and *given*
Correct use of *took* and *taken*
Correct use of *bring* and *brought*
Correct use of *good* and *well*
Making words mean *more* (not *more taller,* etc.)
Making words mean *most* (not *most loveliest,* etc.)
Use of *I, he, she, we,* and *they* with one another or with names as *He and I, John and she, Mary and he, We and our friends,* etc.
Use of *are* and *were* with *He and I, John and She, Mary and he,* etc.
*Punctuation: comma in series
*Capitalization: titles of persons
*Correct use of *two, too,* and *to*
*Punctuation: apostrophe in contractions
Use of *have* in such phrases as *could have, ought to have,* etc. (not *of*)
Correct use of *wrote* and *written*
Correct use of *grew* and *grown, knew* and *known, threw* and *thrown*
*Punctuation: quotation marks
*Punctuation: comma before or after quotation
*Capitalization: first word of quotation
*Punctuation: comma after *yes* and *no*
*Punctuation: comma to set off name of person spoken to
Use of *me, him, her, us,* and *them* with one another or with names, as, *She asked him and me, They asked John and her,* etc.
Use of *me, him, her, us,* and *them* after *with, between, to, for*
Correct use of *we children* and *us children*
Correct use of *spoke* and *spoken, broke* and *broken, froze* and *frozen, chose* and *chosen, stole* and *stolen*

Correct use of *drank* and *drunk, sang* and *sung, rang* and *rung*
Correct use of *a* and *an*
Correct use of *rise* and *raise*
Correct use of *lie* and *lay*
Use of different forms of *sit, sat, rise, raise, lie,* and *lay*
Correct use of *began* and *begun*
Use of *ought* (not *had ought*)
Use of *shall I* (not *will I*) in asking questions
Use of *he said* (not *he says*)
Correct use of *rode* and *ridden*
Correct use of such words as *careful* and *carefully*
*Punctuation: apostrophe to make word show ownership
Avoiding unnecessary words, as: *where to, off of, where is it at, from off*
Correct use of *like* and *as*
Use of *I, he, she, we,* or *they* after *as* or *than,* as *I am older than she.*
Use of *hardly* and *scarcely* (not *haven't hardly,* etc.)

When the phases of usage which have been listed are mastered by pupils in the remedial English class, attention may then be profitably directed toward some of the finer discriminations and less important aspects of language and diction.

Remedial English Workbooks

For the elimination of errors such as have been listed, much practice of correct forms is necessary. For this purpose an abundance of exercise material should be made available to pupils. Helpful in this respect are several English workbooks which have been prepared. Among the most useful are the following:

Guiler and Henry's Remedial English (Revised Edition).[26] This workbook provides a plan for individualizing the study of remedial English. Pupils first take a diagnostic test[27] which reveals any weaknesses they may have. Those pupils who are weak in one particular phase of English are referred to a specific section of the workbook while those who are deficient in other aspects of English are assigned to other sections of the workbook. The workbook is so constructed as

[26] Published by Ginn and Company, Boston.
[27] The diagnostic tests accompany the workbook.

to provide each pupil with the type of remedial work he needs. Following this remedial practice, a retest is given to evaluate the extent of the improvement which has been made.

Tressler's Grammar Minimum Essentials.[28] This workbook contains diagnostic tests, practice exercises, and mastery tests. It is well suited for use with pupils in junior or senior high schools. It can be used to supplement Tressler's textbook entitled *English in Action* or any other similar text.

Individual Corrective English (Books 2, 3, 4, 5, and 6).[29]

This excellent series of workbooks contain a wealth of material for use in the remedial teaching of English. Each book provides practice in oral and written expression, and proper use of grammar, punctuation, and capitalization. Beginning with Book 4, a survey test precedes each unit. In all books a pupil's self-test follows the practice assignments. Accompanying the workbooks are also a set of achievement tests which are valuable in diagnosing special weaknesses of pupils. The plan followed is economical of both pupil and teacher time because each pupil studies and practices those things which he needs most. One of the exercises from Book 5 is reproduced in Figure 20.

Although especially prepared workbooks probably provide the best single source of practice exercises for use in remedial English, other types of material need not be slighted. Newspapers and magazines can sometimes be effectively used as practice material. Jesse Stuart, the teacher of remedial English at Portsmouth, Ohio, makes particularly wide use of the local newspaper in his classes. He describes his practice as follows:

> Wednesdays we spend hunting for mistakes in the paper. We take simple sentences. We hunt for that thing called the subject. . . . Then we start searching for the word that acts for the subject, the predicate verb or verb phrase. . . . We remodel the newspapers' sentences—however, if the news item has a lot of life and ginger in it, we pay more attention to what

[28] Published by D. C. Heath and Company, Boston.

[29] Edith H. Price, Flora B. Miller, and Irene P. Warner, published by the McCormick-Mathers Publishing Company, Wichita, Kansas.

UNIT 5—EXERCISE 2

TWO NEW USES OF THE COMMA

Do you have a hobby, Mary?
Yes, Jean, reading books is my hobby.
Have you ever collected stamps, Mary?
No, Jack, but I think I would like to.

In the first sentence, Jean is speaking to Mary; so a comma is used to separate Mary's name from the rest of the sentence. To whom is Mary speaking in the second sentence? To whom is Jack speaking in the third sentence? To whom is Mary speaking in the fourth sentence? Notice how commas are used in these sentences to separate the name of the person spoken to from the rest of the sentence.

In the second sentence, the word yes is used at the beginning of the sentence as part of an answer to a question. In the fourth sentence, the word no is used in the same way. When yes or no is used in this way, it is separated from the rest of the sentence by a comma.

> Separate the name of the person spoken to from the rest of the sentence by a comma or commas.
>
> When the word yes or no is used as part of an answer, separate it from the rest of the sentence by a comma.

Put commas where they are needed in each sentence.

1. Have you read our new books Mary?
2. Yes Lois I have read many of them.
3. Which books did you like best Mary?
4. I liked the books of travel Paul and those of adventure.
5. What did you like about them Mary?
6. I liked the stories Alice and the pictures.

7. Were the stories easy to read Mary?
8. Yes Carl and the pictures were interesting.
9. Mary wouldn't you like to collect stamps with us?
10. Yes Jack I am sure I would enjoy collecting stamps.
11. Jack will you write for a stamp catalog soon?
12. Yes Dick I'll write as soon as I learn the name of a dealer.
13. Do you know the name of a dealer in stamps Miss Warner?
14. Yes Jack I know a reliable dealer in Cleveland.
15. Will you give me his name soon Miss Warner?
16. Yes Jack I'll get it for you now.

Top Score 24 ***My Score:***

Score 1 point for each correct comma.

Tell the boys and girls in your class about your hobby.

FIG. 20. ONE OF THE EXERCISES FROM BOOK 5 OF *Individual Corrective English*

it has to say than we do to the use of the words and the strange breed of fighting cats to which they belong.[30]

Much usable practice material can also be found in textbooks which have been designed for pupils in the elementary or upper grades. For example, Books One and Two of *Junior English in Action*[31] abound with exercises which could be used to advantage with retarded senior-high-school pupils. The lack of grade labels on these books make them particularly attractive for this purpose. Other books of the textbook type which are of value in the teaching of remedial English are *Correct Usage* (Books One and Two) by Slattery[32] and *Better English Through Practice* (Books One and Two) by May.[33]

Devices for Improving Oral and Written English

Many devices for correcting oral and written errors in English will occur to the teacher who works with remedial groups. An occasional game or other novel type of activity introduces variety and stimulates interest. Any device, however, which is used over and over again loses its appeal and must be replaced by a new one. A few devices that have been employed successfully in remedial English classes will now be described.

The "Error Box." Pupils listen for mistakes in grammar, diction, and pronunciation which their classmates make. If an error is heard either in class or out of class, the pupil hearing it records on a slip of paper his own name, the error, and the name of the pupil making it. This slip is then placed in a box. At given intervals, the box is opened and the errors are read before the whole class. This procedure tends to make each pupil watch his own speech as well as to keep on the lookout for errors in the speech of his companions. The errors which

[30] Jesse Stuart, "Beginning and Eternal Ending: Making the Sparks Fly in a Remedial English Class," *National Education Association Journal,* Vol. 29, May, 1940, pp. 131–132.

[31] J. D. Tressler and M. B. Shelmadine, *Junior English in Action,* Boston, D. C. Heath and Company.

[32] Published by the Globe Book Company, Inc., New York.

[33] Published by the Globe Book Company, Inc., New York.

are assembled in this manner are thoroughly discussed and the correct forms to be used are explained. With older pupils it is probably undesirable to read before the whole class the name of the pupil making the error. It will in most instances suffice to read the error and comment upon it.

The "Mirrophone." This device, which is distributed by the Western Electric Company, can be used to record the errors pupils make in spoken English. The teacher, for example, may ask a pupil to give a little talk on some such subject as "Things I Like to Do." While he is talking, a record is being made of what he is saying. Every error in grammar, diction, and pronunciation he makes will be there to face him when the record is played back. His little speech can be played back as frequently as desired and his errors can be pointed out and corrected. When a switch is turned, the record is erased and the machine is then ready for use with another pupil.

Game of Correcting Errors from Compositions. Each day the teacher writes on the blackboard six or seven faulty sentences which have been found in the pupils' themes. The pupils upon entering the room take sheets of paper and attempt to rewrite the sentences without making any errors. These contributions are then corrected in class. Competition can be staged between the boys and the girls or between pupils sitting in different rows to see which is able to produce the greater number of accurate papers.

Grammatical Baseball. The teacher first collects a large number of incorrect sentences. These can be taken from pupils' themes or from exercise books. The class is then divided into two teams—boys versus girls, or in any other way. The teacher reads the first sentence to a member of team 1 who is supposed to tell what is wrong with it and to correct the error or errors. If he fails he is "out"; if he succeeds he makes a "run." After team 1 makes three "outs," sentences are read to team 2. A team is at bat until it makes three "outs." The side scoring the most runs after five or seven innings wins the game.

A number of similar devices for improving English usage can be found in Clarke and Eaton's book entitled *Improving Secondary*

School English.[34] Devices of all kinds should, however, be used with extreme care. Unless appropriately used they may do more harm than good. Procedures which provide drill on processes of English which are unrelated to individual or group needs may be both time-consuming and futile.

Remedial Programs Used by Schools

In this section, descriptions are given of practices carried forward by teachers of remedial English as revealed in the nation-wide survey of remedial teaching.[35] In most cases the accounts are presented in the words of the teacher conducting the work.

Benjamin Franklin High School, Los Angeles, California. "During the eighth week of the B-11 semester, all pupils take the *Progressive Language Test,* and a special test in written composition. The results of these two tests are combined, and if the total score is unsatisfactory, the remedial work in the A-11 semester is assigned as follows:

1. Pupils with IQs below 85, who have correspondingly low scholastic accomplishments as shown by their tenth-grade records, are not required to take further remedial work in A-11, although they may do so if they desire.
2. Pupils of normal mental ability and accomplishment who fail the test are required to take the A-11 remedial course which we nickname "Everyday English."
3. Pupils of ability and accomplishment who pass the test are not required to take the remedial course unless they desire to do so. Some prospective college entrants are urged to take it, however, even though they have passed the test, if they seem to need bolstering in English.

"Those pupils who fail this 'Everyday English' course are not permitted to repeat it. They must meet their English requirements through other courses. Later, in the A-12 semester, all college preparatory students are required to take ten weeks of English Review.

"By these procedures, we try (*a*) to prepare academic-course pupils

[34] H. A. Clarke and M. P. Eaton, *Improving Secondary School English,* New York, Noble and Noble, Publishers, Inc.

[35] See pp. 149–150 for details of this survey.

for the types of writing, note-taking, briefing, speech and written composition which they must be prepared to undertake in college, (*b*) to help pupils correct as far as possible poor habits of speech and writing which have persisted to Grade 11, and (*c*) to leave in peace the group who have by that time apparently reached their maximum possible accomplishment in English speech and writing, and who, as our experience has shown, resent and resist attempts at further training in English skills."

Portsmouth High School, Portsmouth, Ohio. "We are segregating the students who have difficulty with English, who say they can't get English. The Freshmen and Sophomores combined usually make one section and the Juniors and Seniors another section. We do not classify them as to semesters.

"We use 40 copies of our *Daily Times* paper as a reading textbook and permit them to read about 30 minutes. The other 30 minutes is spent in having them give oral compositions on what they have read, or in writing a paragraph summary of some newspaper article. The news and classified ads furnish the basis for the oral discussion during the year. We use the news stories as a basis for English grammar. We have the pupils name the parts of speech in the sentences of a paragraph or a complete story. We also use the paper in teaching spelling, punctuation, capitalization, paragraphing, etc. In addition to the newspapers we have the regular textbooks, *Literature and Life,* and *Composition Grammar.* However, these regular texts are used only rarely with the remedial classes."

South High School, Minneapolis, Minnesota. "In this school a course is offered which is known as 'technical English.' It is a coaching class in the principles of grammar as applied to common English usage. It is not a class for loafers and flunkers; it is for pupils who lack the technical background to do advanced work in English. Pupils are assigned to the class on the recommendation of the English teacher of the previous term. Credit in the English course of the preceding term is withheld until a grade of Satisfactory is earned in Technical English. The course gives no other credit. Technical English is carried

concurrently with the regular English. It may be, and usually is, carried as a fifth subject."

South High School, Omaha, Nebraska. Before the end of the first twelve-weeks period, Freshmen who are deficient in English composition are selected by their English I teachers and are recommended for a course in remedial composition. "In making his recommendations, the teacher is guided by his observations of the student at work in the classroom and by the results of three tests which have been given. The number in this remedial course is limited to 20 so that the teacher may have some opportunity to give individual attention to pupils. Members of the remedial composition group are often helped by going into a penmanship class or into a spelling class or perhaps into both. Penmanship and spelling are offered in the commercial courses. These drill subjects can be carried during the same quarter as the composition course. The texts which have proved most effective in this class are Guiler and Henry's *Junior Remedial English*, and Mills' *The Story of a Thousand Year Pine*."

In this course the following points are stressed: (1) how to recognize and form a sentence, (2) how to use various parts of speech, (3) how to use the simpler marks of punctuation, (4) how to apply the essential rules for capital letters, (5) how to use the principal parts of the most familiar verbs, (6) how to acquire correct speech habits and to avoid the most common errors in expression, (7) how to spell correctly.

Western Hills High School, Cincinnati, Ohio. The principal of this school describes the work in remedial English as follows: "We have classes in remedial English in every grade. The children are suggested for these classes by the teachers, and both their grades and mental ability are taken into consideration. The teacher of the remedial English classes follows the regular course of study when it is possible, but does not hesitate to alter this as the occasion demands. She does a good deal of activity and project work. Spelling is taught in connection with reading and by special drill. The students write and tell stories, and as the rules of grammar apply, they are given."

San Diego Senior High School, San Diego, California. "This semes-

ter we are testing all High Eleventh-grade students enrolled in English classes in the fundamentals of English usage, handwriting, and arithmetic. Individuals who are markedly deficient are enrolled in instructional units in handwriting and arithmetic conducted by our Commercial Department and in remedial English classes during their twelfth year."

Central High School, Muncie, Indiana. "For pupils who are deficient in English usage, we waive the regular course of study in the tenth and twelfth years and attempt to help these pupils to attain the minimum essentials of correct usage."

Weequahic High School, Newark, New Jersey. "In this school, we try to discover what pupils need help in usage, grammar, etc., and give it to them directly. We have just this term instituted a principal's Qualifying Certificate in English. This will go to those members of our graduating class whose score is in the top seventh of a usage test we give them."

The eight reports from senior high schools which have just been presented give some idea of practice which exists in remedial English work. Some schools have special classes labeled "remedial English" while others carry on work in the regular English classes which is essentially remedial. Many of the classes which are designated as "remedial English" give attention to the improvement of reading and spelling as well as to that of English usage. It is apparent that many schools throughout the country are making an earnest effort to provide the type of English instruction which will minister to the individual needs of their pupils.

General Suggestions for Improving Use of English

Evidence from the field of psychology clearly indicates that pupils *learn to do what they do.*[36] If a pupil learns a rule of grammar, he will be able to repeat that rule, but he will not necessarily be able to put the rule to use in his speaking and writing. Transfer of training

[36] E. R. Guthrie, "Conditioning: A Theory of Learning in Terms of Stimulus, Response, and Association," *The Psychology of Learning,* Forty-First Yearbook of the National Society for the Study of Education, Part II, Bloomington, Illinois, Public School Publishing Company, 1942, pp. 23–26.

takes place only between elements and situations which are approximately identical. *If pupils are to speak and write correctly they must be given practice in speaking and writing correctly.* Grammar should, therefore, not be taught to remedial groups as a separate subject but should be used solely to assist the pupils with their oral and written compositions.

Another principle of great importance is that of *applying practice at the point of error.* In this connection, Reed makes the following comment:

> Effort expended in correcting errors produces more improvement than that expended upon activities that are fairly well known. . . . The usual procedure is to conduct students through a certain course or to give a certain course to them, taking no account of which parts of the course are known and not known by the students. The teacher usually proceeds on the assumption that none of the material is known and that all of it needs equal emphasis. . . . The value of concentrating efforts on the correction of errors has been shown in experiments in learning the fundamental operations in arithmetic, typewriting, handwriting, spelling, and English.[37]

This fact makes it of utmost importance for the teacher of remedial English to catalog carefully each pupil's errors. The tests which were described in a previous section should provide useful materials for doing this.

A final and most important principle has to do with motivation. Pupils must want to improve their English or little good will result from remedial efforts. *This means that teachers must skillfully relate the materials of instruction to the basic goals of each pupil.* If a pupil sees that a better knowledge of oral or written English will benefit him personally, he will be motivated to much higher levels of achievement than otherwise. The pupil must not only need the material, he must also see that he needs it in order to accomplish some goal he has set for himself. The teacher should, therefore, focus his initial attention upon the pupil rather than upon the subject matter. The amount and type of English which is subsequently taught should depend upon the facts obtained in the individual appraisal of each pupil.

[37] H. B. Reed, *Psychology and Teaching of Secondary-School Subjects,* New York, Prentice-Hall, Inc., 1939, pp. 20–21.

Summary

Schools should provide remedial work in English for those pupils who have never learned to use effectively the most fundamental phases of oral and written expression. Studies of the errors made by pupils in oral English show that difficulties involving verb forms are particularly numerous. In written English, the most prevalent errors involve commas, capitalization, verbs, pronouns, and sentence structure. The characteristic errors of any given pupil can be identified by analyzing his oral and written compositions and by utilizing specially prepared diagnostic tests.

The causes of disability in oral and written English include physical defects, inferior scholastic aptitude, lack of interest, previous failure, poor language usage in the home or community, lack of knowledge as to what constitutes good English, and lack of sufficient practice on correct language forms.

Remedial work should concern itself with the most fundamental phases of oral and written discourse. Little attention should be given to treatment of controversial forms and expressions. In this chapter is presented a list of the most essential phases of English usage which should be mastered by every pupil. Workbooks, devices, and plans which the teacher can use in carrying on remedial instruction are also described.

Important suggestions for improving pupils' use of English are: (1) provide plenty of opportunities for pupils to speak and write correctly, (2) devote little time to the study of formal grammar, (3) apply practice at the points of error, (4) motivate the work by relating it to each pupil's own life ambitions and goals.

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PART 3

IMPROVING SKILL IN REMEDIAL TEACHING

Chapter 13

Making Case Studies

When pupils are found who are severely retarded in reading or in other school subjects, the teacher should infer immediately that definite causes are responsible for this condition. Pupils just do not happen to dislike a subject or fail to make progress in it. If these causes are ignored and nothing is done to remove them or to take them into account, greater retardation is not only likely to result, but the pupil stands an excellent chance of developing unwholesome personality adjustments. What is needed by the teacher is an understanding of the causes that are operative. Once these are known, steps can be taken to deal with them.

What has been said implies that before a teacher can teach a pupil, he must know a great deal about him. Ideally, a case study could well be made for every pupil regardless of whether he is or is not retarded. In many school situations, however, it is impossible from a practical standpoint to make exhaustive case studies of all pupils. In such instances, the only alternative is to do as much of this work as is possible. Case studies can, at first, be made of those pupils who appear to be most in need of assistance, and as time goes on and as facilities are expanded, this service may well be extended to additional pupils.

The writer does not share the view of some educators and psychologists that teachers are not capable of making useful case studies of their pupils. It is true, of course, that specialized skill and training in methods of psychological diagnosis are great assets in connection with such work. Yet it is equally true that any individual who is quali-

fied to teach children is also qualified to find out as much as he can about each child and act upon this information. Many tests may have to be omitted in the diagnosis because of lack of specific training on the part of the teacher. Partially incorrect diagnoses may be made at times because of lack of insight and knowledge of underlying casual factors. However, the good results that can be secured from careful individual study of pupils will, in most cases, outweigh any attendant evils.

If a given case study reveals physical or mental disorders of a complicated nature, the pupil should be called to the attention of competent medical or psychological experts. If the case study procedure did no more than detect defects and disorders that need specialized attention, it would serve a useful purpose. Many of the troubles, however, of retarded pupils in school are of a pedagogical nature and respond well to the treatment which teachers are well qualified to give. Thorough case studies should provide the teacher with pertinent information about pupils which will make the teaching much more effective than it otherwise would be.

How to Make a Case Study

Once a particular pupil has been selected for study, the teacher begins to gather together in a systematic way many kinds of data from many sources concerning the pupil and his particular problem. As the information is collected it can be placed in a separate manila folder which bears the pupil's name.

As soon as a sufficient body of material is at hand, it should be organized and interpreted. The following outline is suggestive of how the report of a given case might be arranged.

OUTLINE FOR MAKING A CASE STUDY

Teacher making study ..... Date of investigation.....

I. *Identification of Pupil*
   Give his name, address, age, sex, school grade.

II. *Statement of the Problem*
   Include an account of why the pupil is being studied. What ap-

pears to be his trouble? Is he a slow reader, poor speller, deficient in arithmetic, or what?

III. *Diagnostic Test Data*

What are his particular strengths and weaknesses? If he is a poor reader, the tests should answer such questions as these: How well does he read? What is his method of attacking new words? Does he have an adequate sight vocabulary? Is he an inaccurate reader? Does he make frequent reversals? If he is deficient in arithmetic, the tests should answer such questions as: What fundamental operations cause him the most trouble? Does he know the basic number combinations? What are his specific errors?

IV. *Interview with Pupil*

Give significant information which the pupil has contributed about himself. What does he think about his difficulty? What are his attitudes, outlooks, interests, plans?

V. *Pupil's Physical Condition*

Has he any visual or auditory defects? Is he malnourished? Does he have adenoids or diseased teeth? Are there evidences of abnormal glandular conditions or nervous disorders? Is he frequently ill? Much of this information can be supplied by the school nurse. A report from a complete medical examination should be secured whenever possible.

VI. *Social and Emotional Adjustment*

Does he get along well with other pupils? Does he get along well with his teachers? Is he shy and retiring? Does he exhibit aggressive behavior? Has he been involved in any disciplinary episodes in school? Information can be secured from actual observation of the pupil's behavior, by consulting with other teachers, and by means of personality and adjustment tests.

VII. *Educational Record*

This should include not only his present scholastic attainments, but should also trace his academic successes and failures as far back as the first grade. The school office files can be searched for this information, and previous teachers and principals can be consulted.

VIII. *Mental Test Data*

What do the results of standardized intelligence tests indicate? Does he possess below average, average, or above average learning ability? Does he score higher on a verbal or nonverbal type of test? Always record the exact name and form of the test used as well as the score or IQ. Whenever possible an individual

test such as the *Stanford Binet Scale* should be administered.

IX. *Special Interests and Attainments*

What are his interests? What does he do when school is out? Does he like to read? What outstanding things has he ever done? Much of this information can be secured through interviews with the pupil, by means of questionnaires, and by consulting his friends, teachers, or relatives.

X. *Home Conditions*

What is the socioeconomic level of the home? How many brothers and sisters does he have? Are they superior or inferior to him in academic achievement? Is the home a happy place in which to live or is there a great amount of conflict? What is the father's occupation? Does the mother work? What is the attitude of the parents toward the pupil and his problem? Is there a good library in the home? These are just a few of the many details which should be secured relative to the home environment. Information under this heading should be obtained through an actual visit to the home as well as from other available sources.

XI. *Diagnosis of the Case*

Taking all the facts into consideration, what seem to be the chief obstacles to the pupil's normal progress?

XII. *Recommendations*

What should be done in the light of the evidence which has been gathered? Should his program of studies be rearranged? Should an attempt be made to alter certain home conditions? Should he be given regular remedial work? What should be the nature of this work? What materials should be used? The plan of attack should be as completely outlined as possible. As conditions change or as new evidence is obtained this procedure can be modified accordingly.

The teacher gathers much of his information by three methods—observation, testing, and interview. University courses in clinical psychology and educational measurements should greatly assist the teacher in the skillful manipulation of these three methods. Reading books in these areas should also prove helpful. Some attention has been given to the first two procedures in earlier chapters. A few words should now be said regarding the technique of conducting an interview.

Conducting an Interview. The teacher in the process of making a

case study must not only interview the pupil himself, but will be called upon to interview parents, teachers, and other individuals. It is most important that this phase of the work be skillfully conducted. The suggestions that are given in the next paragraph are phrased in terms of the pupil. They are, however, equally applicable to all interviewing situations.

In the first place it is highly desirable that provision be made for privacy. Pupils hesitate to relate certain feelings and experiences if other pupils or persons are present. In the second place, rapport must be immediately established between the teacher and pupil. The pupil must have confidence in the teacher and feel that he is genuinely interested in him and his problem. Third, the teacher should spend most of the time listening to what the pupil has to say rather than doing a major part of the talking himself. Fourth, notes of what is said and done should not be made during the interview. As soon as the pupil leaves the room, however, a complete record should be made of all that took place. There are many other specific points that could be mentioned, but the teacher's own good judgment will guide him in making many of the fine adjustments that are necessary. Those who are interested in exploring further the subject of interviewing should read such books as Fenlason's[1] *Essentials in Interviewing* and Tyler's[2] *The Work of the Counselor.*

Illustrative Case Studies

Three case studies of pupils with special difficulties who have been brought to the Educational Clinic at the University of Illinois are presented in some detail in order to illustrate further the case study technique. Teachers in the public schools may not have available or be able to use all of the diagnostic instruments referred to in these studies. This should not deter them, however, from studying their pupils in much the same manner as is reported here. The only re-

[1] Anne E. Fenlason, *Essentials in Interviewing,* New York, Harper and Brothers, 1952.

[2] Leona E. Tyler, *The Work of the Counselor,* New York, Appleton-Century-Crofts, Inc., 1953. Chapter 2 is particularly helpful.

quirements for making a case study are (1) that the teacher gather as much significant information as is possible about the pupil and his problem, and (2) that he use these data in furthering the pupil's best interests.

CASE OF HELEN

Name—Helen Smith Chronological Age—13 years and 6 mos.
School Grade—9.5

STATEMENT OF THE PROBLEM. Helen was referred to the Educational Clinic by her high-school principal because of her apparent inability to read well enough to do successful work in the school subjects she was carrying. Her parents had also become worried about the situation and had requested that the school do something about it if it were possible. They reported that Helen read no better than her fifth-grade sister. How well does Helen read? What is wrong and what can be done about it?

DIAGNOSTIC TEST DATA. Early in the study, Helen was given some reading tests, and her eye movements were photographed by means of the Ophthalmograph. The results were as follows:

Gates Reading Survey for Grades 3 to 10, Form I

	READING GRADE
Vocabulary	8.4
Level of comprehension	9.3
Speed of reading	4.8
Average reading grade	7.5
Accuracy of reading 95% (high)	

Iowa Silent Reading Tests, Elementary, Form A

	READING GRADE
Total comprehension	7.0
Rate of silent reading	3.3

Ophthalmograph Film Record

Card A:		GRADE LEVEL
Number of words in selection	50	
Length of film	$13\frac{3}{16}$ in.	
Rate per minute	112 words	3rd

Fixations per 100 words	202	2nd
Regressions per 100 words	52	2nd
Comprehension	90%	
Card B:		
Number of words	50	
Length of film	12¾ in.	
Rate per minute	124 words	3rd
Fixations per 100 words	182	2nd
Regressions per 100 words	60	High 1st
Comprehension	100%	

INTERVIEW WITH HELEN. During the interview, Helen was cooperative and contributed much information about herself. When asked if she was happy in school, she replied, "Yes, most of the time." She indicated, however, that she worried a great deal about school examinations and grades, and was apprehensive about whether or not she was going to pass her work. She stated that her favorite subject was history and that the subject that gave her the most trouble was mathematics. She also remarked that most of the assignments in school were too long and that she had great difficulty in getting them done. "Schoolwork is much easier for my sister," she said. Helen has gone to a summer camp three times, attends movies about two times a month, and dislikes to participate in school dramatics. Her behavior during the interview revealed that she possesses a somewhat shy and retiring personality. She is not particularly enthusiastic about anything. She has definite plans of entering college or university when her high-school course is finished.

HELEN'S PHYSICAL CONDITION.

Result of vision test (Keystone telebinocular):

Test 1.	Dog and Pig	Dog jumping through hoop	Pass
Test 2.	Visual Efficiency		
	Binocular	100%	Pass
	Left eye	100%	Pass
	Right eye	90%	Pass
Test 3.	Stereopsis Level	All correct	Pass

Test 4.	Vertical Imbalance	Line through center of ball	Pass
Test 5.	Far-point Fusion	Sees 3 balls	Pass
Test 6*a*.	Lateral Imbalance at Far Point	Arrow points to 8	Pass
Test 6*b*.	Lateral Imbalance at Near Point	Arrow points to 4	Pass
Test 7.	Near-point Fusion	Sees 3 balls	Pass
Test 8.	Ametropia		
	a. Near distance	Lines distinct and correctly called	Pass
	b. Far distance	All correct	Pass

Results of audiometer test (Western Electric 4D Audiometer):

Right ear	Hearing loss	−3
Left ear	Hearing loss	−3

This indicates unusually good hearing acuity as it is one step better than 0 hearing loss.

Report from dentist:

Dr. . . . . reports that she comes to him for annual checkup, and that her teeth are in excellent condition.

General health:

Frequent colds—No
Ear trouble—No
Constipation—No
Headaches—Yes
Sore throats—Seldom
Nailbiting—No
Has had most childhood diseases. Frequently has "flu."
Dr. . . . . reports that her general physical condition is very satisfactory.

EDUCATIONAL RECORD.

Scholarship during 8th grade			*Scholarship during 9th grade*	
	1ST SEM.	2ND SEM.		1ST SEM.
English	B	C	English	C
Mathematics	B	B	Algebra	D

Social studies	C	B	Latin	C
Music appreciation	B		General science	C
Art		B	Physical education	B
Physical education	C	C		
Home economics		C		
Glee club	B	B		

Social and Emotional Adjustment. Helen seems to be fairly well adjusted personally despite the fact that she worries a great deal about her schoolwork. She says that she likes all her teachers. She has friends among her schoolmates and seems to enjoy working and playing with them. She has never been any disciplinary problem whatsoever in school, and her principal states that her character must be given the highest rating. Her teachers report that she is reliable, but is not so enthusiastic in accepting responsibility as are some pupils. She is characterized by all who know her as being retiring rather than aggressive.

Mental Test Data.

	IQ
Otis Self-Administering Test of Mental Ability, Higher Examination, Form A	97
Terman Group Test of Mental Ability, Form A	99
Revised Stanford-Binet Scale, Form L	115

Special Interests and Attainments. Helen does not seem to possess unusual talents in any field, although she plays the piano some and is fairly good at swimming and canoeing. She has a pet dog, and enjoys collecting stamps and perfume. Says she likes to read once in a while, but that it takes her many days to finish a book. She expressed her opinion of several books she had attempted to read in previous months as follows:

Seven Days at Sea (By Strang, Burks, and Puls). Said she had quit reading this book after finishing the first five or six chapters. She reported that she did not like it because "It is too old-fashioned," "The characters use too perfect English," "They don't say 'O.K.' or 'nuts.' " She furthermore expressed the opinion that there was not enough action in this story. "No-

body gets married and there is nothing in it about nurses." She stated that she likes books that are modern in their subject matter.

Real Persons (Living Through Biography Series by Starbuck). Although the teacher gave her this book for home reading, Helen said that she did not read it because biographies do not interest her.

One Night of Love (Big Little Book Edition). Helen reported that she read every word of this book and enjoyed it immensely. She liked the romantic plot as well as the excellent illustrations which were spread through the text.

So Big (By Edna Ferber). Didn't like this book because there was not enough dialogue in it. She stated she read only about three chapters before casting it aside.

Other books liked: *Peggy Covers London* by Emma Bugbee, *Lorna Doone* (simplified edition by Jordan, Berglund, and Washburne), *Inspector Wade* (Big Little Book), *Gene Autry* (Big Little Book), *Jim Craig, State Trooper* (Big Little Book), *Abbie and Slats* (Big Little Book).

Other books not liked: *The Road to Liberty* by Hagedorn (read three chapters), *When Washington Danced* adapted by Moderow (read 104 pages of it but said that it was not too exciting).

Home Conditions. Helen comes from a home which is on a high socioeconomic level. Her father and mother are both living and Helen has a sister who is ten years old. Her sister reads much more rapidly than does Helen and also makes higher grades in school. The parents are considerably worried over Helen's apparent inability to read better. The mother is extremely cooperative and will do whatever the school suggests should be done.

Diagnosis of the Case. Among the significant facts revealed by the data are the following:

1. Helen's chief reading weakness is found to be in her speed of reading. Her comprehension is very good, but she reads at an inordinately slow rate—third or fourth-grade level at the most. This makes it practically impossible for her to cover her high-school reading assignments in the time which she has available for that purpose.

2. Helen's physical condition appears to be very satisfactory and unrelated to her disability in reading.

3. As yet, she has not developed any severe personality malad-

justments as the result of her worrying about her schoolwork and her lack of success in reading.

4. She is a girl with good mental ability as measured by intelligence tests and should, under favorable conditions, be able to learn to read more effectively than she does. It is interesting to note that her Binet IQ is considerably higher than her IQs on tests which require her to read the questions before answering them. It is very likely that her slow rate of reading is responsible for these lower scores.

5. Helen does not read much because it is such a slow laborious process. She does, however, have definite likes and dislikes as to what she reads. She likes books dealing with romance, nursing, and adventure which are written in the language of the day and which contain a great deal of dialogue. She does not like old-fashioned books written in a stilted style and in which there is slow-moving action.

6. Helen comes from a home which is well off financially and is superior in other ways, but it is likely that she suffers to some extent because of the fact that her younger sister excels her in speed of reading and in general scholarship.

Taking all the data into account, it appears that most of Helen's difficulties would be solved if by some means she could learn to read more rapidly. She is in good health, has good mental ability, has a good vocabulary, but is retarded in speed of reading about five or six grades. This special disability is hindering her normal progress in school and may in time produce marked effects upon her personality. She is already developing shyness and an indifferent attitude toward her schoolwork. The fact that she reads more slowly than her younger sister places her under a further strain which may lead to serious consequences. She will never be able to carry college or university work successfully with her present reading handicap.

RECOMMENDATIONS. It is recommended that special and concentrated attention be given to the problem of developing Helen's speed of reading. Two methods that are likely to produce results are the *wide reading method* and the *forced speed method.* Helen does not read nearly so much as a girl of her age and grade should. Every ef-

fort should therefore be made to find what her interests are and to provide her with easy fascinating reading materials which will help her to further her own interests. As these interests grow and as she reads more and more books, her speed and facility of reading will likewise improve. Rapid readers are nearly always individuals who read extensively. Slow readers are invariably individuals who read very little, or who read difficult and closely woven materials exclusively. In Helen's case, it might be well to let her start with the Big Little Books (books which she enjoys) and allow her to read 20 or 25 of them before exposing her to other equally interesting materials.

In addition to this program of wide reading, a few minutes each day should be devoted to *forced speed methods.* One of these methods consists of the use of time limits when reading an article or story of a given length. Helen, for example, might allow herself 15 minutes to read a selection which has ordinarily required 20 minutes. She will probably be surprised to find that she is able to do this very thing. With enough practice this newer rate of speed will become as habitual as her former rate. If a Metronoscope or reading accelerator is available it should be used also. The reading accelerator is a particularly helpful device since any book or magazine can be placed in the rack and read at any desired rate of speed. Since the pupil must keep ahead of the moving plate, he is forced to read at the rate at which the machine has been set. The push-card method which is described in Chap. 4 of this book should also prove useful in a case such as Helen's.

It is also recommended that Helen's father and mother be made aware of the serious consequences that may result from unfavorably comparing Helen's reading ability with that of her younger sister, and of rejecting Helen and favoring the sister because of this condition. It might be a good plan if Helen could go away for a year or two to a girl's boarding school. There she could develop initiative and habits of independence which might be difficult to develop at home. Furthermore, she would be free from the inevitable competition that her sister provides as well as the undesirable comparisons that are

difficult to avoid. The financial condition of Helen's parents would make it possible to carry out this latter proposal.

CASE OF GEORGE

Name—George Wilson Chronological Age—16 years and 2 months
School Grade—10.6

STATEMENT OF THE PROBLEM. George is a fine-looking boy who has just finished the first semester of his Sophomore year in high school. He was brought to the Educational Clinic by one of his teachers who was of the opinion that something should be done about his reading ability. She stated that he was hopelessly floundering in the English course which she taught. How well does George read? What can be done about his case?

DIAGNOSTIC TEST DATA.

Gates Reading Survey for Grades 3 to 10, Form I

	READING GRADE
Vocabulary	3.9
Comprehension	7.1*
Speed	2.5

* George required 2½ hours to finish the comprehension section of the test. Although there is no time limit for this section, 30 minutes is the usual time allotment.

Ophthalmograph Film Record

		GRADE LEVEL
Card A:		
Comprehension	50%	
Words per minute read	95	2
Fixations per 100 words	228	2
Regressions per 100 words	42	3
Card B:		
Comprehension	80%	
Words per minute read	81	2
Fixations per 100 words	280	1
Regressions per 100 words	38	3

Dolch's Basic Sight Vocabulary

George was asked to identify one at a time the 220 basic words of the Dolch list. The following words were miscalled:

always	grow	our	these
at	his	over	they
can	hurt	own	think
cold	just	ran	to
come	kind	round	us
did	know	run	want
done	live	saw	when
eat	made	say	where
found	many	see	which
from	may	shall	white
gave	me	small	with
get	my	so	would
give	never	some	who
got	now	that	yes
green	no	this	your

Gates Reading Diagnosis Test

	RAW SCORE	GRADE SCORE
1. Oral Reading	12	3.5
Omissions, words	1	
Additions, words	0	
Repetitions	0	
Mispronunciations:		
Full reversals	0	
Reversal of parts	0	
Wrong beginning	2	
Wrong middle	0	
Wrong ending	3	
Wrong several parts	1	
2. Word Pronunciation	63	3.6
3. Perceptual Orientation, Isolated words	3	3.5
4. Visual Perception Techniques:		
Phonogram combinations	9½	3.8
Initial vowel syllables	15	3.0
Initial consonant syllables	9	3.7
Vowel-consonant phonograms	19	3.7

Consonant phonograms	9	3.6
Consonant-vowel phonograms	10	3.7
5. Visual Perception:		
Same-different figures	33	8.5
Same-different numbers	43	6.0
Selection of figures	23	8.0

New Stanford Arithmetic Test, Form V

	ARITHMETIC GRADE
Reasoning test	7.4
Computation test	7.1

INTERVIEW WITH GEORGE. George is a tall well-dressed boy who makes a fine appearance. He is extremely polite and seems to be well poised. He stated that he dislikes very much to recite in class or to give any kind of report even though he has prepared his lessons thoroughly. His most troublesome subjects at present are English, general science, and algebra. He admits that not being able to read well is a great handicap to him. He likes grocery-store work, but thinks that people do not make much money at it. His desire is to make lots of money. He has frequently carried newspapers and that appeals to him very much. George plans to finish high school and also graduate from a university. These plans are also held by his parents.

PHYSICAL CONDITION. George's eyes were examined by means of the Keystone Ophthalmic Telebinocular and his hearing was tested with the Western Electric 4D audiometer. No defects of any kind were found. His school attendance has never been affected by ill health. He is slightly underweight for his height which is six feet, but this condition is frequently found among boys of his age. He does most things, including writing, with his left hand.

SOCIAL AND EMOTIONAL ADJUSTMENT. George seems to be extremely well adjusted personally considering what he has been through. He has never been a disciplinary problem in school and has a very wholesome outlook on life. His life, however, is rather uncomfortable since his unsuccessful schoolwork constantly places him in an embarrassing position.

EDUCATIONAL RECORD. George did his elementary-school work at the ——— school in ———. He entered school at the age of six years and ten months, and had to repeat the first grade. He spent three years in the ——— Junior High School and his record for the last year there is as follows:

English	D
Speech	C
Dramatics	D
Commercial arithmetic	C
Metal work	C

He has been in senior high school for a little over one semester. His record for the semester is:

English	(could be given no grade in comparison with the rest of the class)
Algebra	E
Industrial arts	D
Physical education	E
Glee club	C
General science	Conditional

His second-semester registration consists of:

English
General science
Industrial arts
Physical education

In English and general science he is not able to participate in regular classwork, so merely attends class and is allowed to "read" or listen as he chooses. He does his drawings in industrial arts, but says he has to "catch on" with what to do in class because he is unable to read any of the assignments.

MENTAL TEST DATA.

	IQ
Terman Group Test of Mental Ability, Form A, Grades 7–12	65
Otis Self-Administering Test of Mental Ability, Higher Examination, Form A	71
Revised Stanford-Binet Scale, Form L	91

It is obvious that George does much better on an intelligence test which does not involve any reading than on one which does. Both the Terman and Otis tests require that the subject read the questions he is to answer, whereas the Revised Stanford-Binet test is administered orally.

Special Interests and Attainments. George does not engage in any extra-curricular activities or follow any sports. He has no work outside of school except that of occasionally delivering papers as a substitute for the regular newsboy. He enjoys going after school hours to the oil station where his brother works. During the spring he has helped his mother with the garden. George likes movies very much and generally goes two or three times per week. For the activity period during the present semester he has chosen bridge. The first semester he chose typing as his activity, but thought it was too hard. His favorite school subject at the present time is industrial arts.

Home Conditions. There are five other members in the Wilson family—the father and mother both between 50 and 60 years of age, and three brothers, aged 23, 21, and 19. The father is a very poor reader; he left school while in the seventh grade to support the family after the death of his father. George's mother had one or two years of college work and taught in the elementary schools. His brothers all graduated from high school and one attended a university for a semester. One other boy besides George failed the first grade and the mother attributes it to starting him to school too young.

The father works as a salesman in a department store, one brother sacks groceries in a "super market," another works in a gas station, and the oldest one does odd jobs around town.

The family is probably of low-average economic status, but they own their own seven-room home on ——— Street. There is not much incentive to read at home for there are few books. The *Liberty Magazine* and a newspaper, however, come regularly.

Both parents are very cooperative. George's mother has recently tried to help him with his reading.

Diagnosis of the Case. George reads no better on the average than an eight- or nine-year-old boy, yet his mental age on the *Revised*

Stanford-Binet Scale is 13 years and eight months. It is true that he is below average in general mental ability, but he should be reading at least up to his mental level. At present his reading performance is about four or five grades below this level.

George apparently got off to a poor start in reading in the primary grades because of his meager mental ability and the accompanying neglect of his teachers. He was pushed on from grade to grade. Little effort was made by his teachers to adjust the work in reading to his ability and stage of readiness. At the present time as a high-school Sophomore his position is practically untenable. He is now being asked to read difficult books in general science and in other subjects which are totally inappropriate for one of his abilities.

The data reveal the fact that he has a most limited sight vocabulary. He failed to recognize 60 of the words of the Dolch list. All of the words on this list are recognized instantly by good second-grade readers and by average third-grade readers.

George could have been taught to read if proper methods had been employed. He can still be taught to read provided the necessary conditions can be met.

Recommendations. It is recommended that each of George's high-school teachers be conferred with, and the situation thoroughly explained to them. Following this, each of George's courses should be turned into remedial reading courses so far as he is concerned. In English, he should immediately begin mastering the 220 words of the Basic Sight Vocabulary. These words make up from 50 to 75 per cent of all school reading matter and should therefore be recognized instantly. Knowing them will give him confidence, because every ten-word line he reads will contain approximately six or seven of them. The regular classics such as *Silas Marner, Julius Caesar,* and the *Canterbury Tales,* should not be read by him at this time. Instead materials at the second- and third-grade levels should be used which include both books and material in newspaper form. *My Weekly Reader* (American Educational Press) is an excellent little weekly which can be secured for any reading level up to about the sixth grade. If classics are to be read at all they should be simplified editions

such as are included in The Thorndike Library (D. Appleton-Century Company) and Simplified and Abridged Classics (Longmans, Green and Company).

George's work in general science should consist of field trips, and the reading of very easy scientific materials often of a popular nature. Materials which have been prepared for science instruction in elementary schools will also be found useful. The regular textbook of the course should have no place whatsoever in George's modified program. If George can find reading a pleasure he will continue to read more and more extensively as time goes on.

George's industrial arts course and physical education course probably do not involve a great deal of reading. His teachers, however, should be careful to keep his problem in mind when assigning reading in these fields.

If the school has a trained psychologist or teacher of remedial reading available, a few minutes each day of special tutoring would be highly beneficial. Such work should be well motivated and partake of the nature of drill as little as possible. The instructional plan should call for some work on phonics since George revealed in his oral reading that he uses inadequate methods of attacking new words. The English teacher can also assist with this phase of the work.

CASE OF HENRY

Name—Henry Bradbury Chronological Age—15 years and 9 months
School Grade—11.0

STATEMENT OF THE PROBLEM. This boy was referred to the Educational Clinic by his high-school principal because of a marked disability in arithmetic. He had taken algebra during his Sophomore year and had failed it. His parents and teachers were very much distressed over his seeming inability to do satisfactory work in mathematics.

DIAGNOSTIC TEST DATA. Henry was given several tests in arithmetic in order to ascertain the extent of his retardation. The results were as follows:

	GRADE LEVEL
New Stanford Achievement Test, Advanced Edition:	
Form V	
Arithmetic reasoning	4.0
Arithmetic computation	2.0
Metropolitan Achievement Test, Intermediate Battery:	
Form A—Arithmetic fundamentals	3.7
Unit Scales of Attainment, Primary Division, Grade 3:	
Form A—Fundamental operations	3.9

Examples of problems he missed:

Subtraction	658	$.68	906	4000	7003
	101	.49	460	2706	6995
	507	19	440	304	118
Multiplication	452	$.75	612	321	9785
	8	8	30	2	46
	686	565	936	542	39690
					3460
					74290

Division: Totally unable to do such problems as these

$42 \div 7$ $56 \div 6$ $4\overline{)96}$ $16\overline{)912}$ $4\overline{)29}$

His difficulties were analyzed further by means of the *Buswell-John Diagnostic Chart for Fundamental Processes in Arithmetic.* He was able to do most of the addition examples, but had great difficulty with the problems in subtraction and multiplication. He did not know how to handle zeros and was unsure of many of his combinations. He could not work any type of division problems.

Some tests were given in other tool subjects to see whether or not his disability was confined to arithmetic. The results are given below:

Gates Reading Survey for Grades 3 to 10, Form II

Vocabulary	5.2
Level of comprehension	6.8
Speed of reading	6.0
Average reading grade	6.0
Reading accuracy: 73 per cent	

New Stanford Achievement Test, Advanced Examination, Form A—Diction test showed his spelling ability to be at grade 3.0.

Interview with Henry. Henry was very shy and talked little during the interview. He seemed depressed and unenthusiastic. When asked what he thought was the cause of his trouble in arithmetic, he replied, "I don't know." He was very indefinite with respect to his future plans. He did say, however, that he expects to go to college. The only school subject that he cares anything about is art. He says that he likes to dance and play basketball. He gives the impression of being in a daze.

Physical Condition. The vision and hearing tests which were administered to him revealed no defects. A medical examination given the previous year to all boys participating in basketball showed him to be physically sound. He is tall and well developed. According to the school records, he has seldom been absent because of illness.

Social and Emotional Adjustment. His teachers report that he seems to get along well with other pupils. He does not exhibit any aggresive behavior and has never been involved in any disciplinary episodes. One teacher rates him as being inattentive and lacking in a sense of responsibility. Another teacher states that he lacks confidence in himself, and seems to be very insecure. When he came to the Educational Clinic, he was given the Rorschach test.[3] A summary of Henry's personality as revealed by this test is presented herewith.

Rorschach Summary

The large number of responses (62) which he gave is characteristic of individuals with artistic ability. The ratio of M to C and the large number of F responses indicate that he possesses too little affective energy in his emotional contact with the outside world. This may be due either to withdrawal or to repression. The disproportionate number of F responses may indicate constriction with compulsive elements or a severe form of depression. The ratio of his M responses to his C responses points toward

[3] For description of this test see Bruno Klopfer and Douglas M. Kelley, *The Rorschach Technique,* Yonkers-on-Hudson, New York, World Book Company, 1942, or Herman Rorschach, *Psychodiagnostik* (English translation), New York, Grune and Stratton, 1942. Special instruction in the method as well as clinical experience is a necessary prerequisite for use of the test.

an introversive tendency. Henry had few W responses, two M responses, and many F— responses. These signs are all indicative of low or mediocre mental ability. The lack of S responses probably means that he is not negativistic. The very large number of unusual detail responses found in his record is symptomatic of a withdrawal from reality.

Special Interests and Attainments. During his Sophomore year, Henry was successful in making the second team in basketball and was also a member of a group which put on exhibition cowboy dances. He likes to paint and draw sketches. His teachers unanimously reported that he has some talent in art.

Home Conditions. Henry comes from a home of culture and refinement. His father is a professional man of high standing. He has one sister and one brother. The sister who is two years older than Henry does excellent work in school. The parents constantly remind him of his sister's achievements and try to spur him on to greater efforts. The brother, who is several years younger than Henry, makes average grades in school. The parents are ambitious for all their children and expect each of them to complete a college education.

Educational Record. Henry's scholarship record through the grade school and through two years of high school has been extremely poor in the regular school subjects. In art, music appreciation, industrial arts, and physical education, he has, however, done very satisfactory work. Henry had an attack of scarlet fever when in the fourth grade. His mother believes that his troubles in arithmetic began at that time. A detailed account of Henry's school marks for the past three years is presented below. Although he has failed many subjects both in the elementary and upper grades, he has never had to repeat a grade due to the promotion policies of the schools he has attended.

Eighth Grade

	FIRST SEM.	SECOND SEM.
Arithmetic	E	E
Literature	D	E
English	D	E
Geography—civics	D	D

United States history	E	E
General science	E	E
Physical education	S	S
Music	S	S
Manual arts	S	S

E, below 75; D, 75 to 79; S satisfactory

Ninth Grade

	FIRST SEM.	SECOND SEM.
English I	D	D
Algebra I	W	—
Industrial arts	C	C
General science	D	D
Art and music apprec.	B	C
Physical education	B	B
General mathematics	D	D

Tenth Grade

	FIRST SEM.	SECOND SEM.
English II	D	D
Algebra I	D	E
Typewriting	D	D
Biology	E	—
Physical education	A	Exc.
Art	—	C

MENTAL TEST DATA.

Otis Self-Administering Test of Mental Ability, Higher Exam., Form A.	82
Henmon-Nelson Test of Mental Ability (Grades 7 to 12), Form B	74
Revised Stanford-Binet Scale, Form L	97

DIAGNOSIS OF THE CASE. Some of the significant facts and inferences drawn from this study will now be summarized.

1. Henry is retarded in arithmetic about seven or eight grades, in spelling eight grades, and in reading about five grades.

2. He has nearly average mental ability as measured by the Revised Stanford-Binet Scale. On mental tests requiring arithmetic and reading ability as do the Otis and Henmon-Nelson tests, he rates considerably lower.

3. His personality seems to have suffered as the result of the continued failure and frustration to which he has been subjected. There is evidence that he feels insecure and that he is developing unwholesome regressive tendencies.

4. His greatest aptitude appears to lie in the area of art.

5. It is evident that Henry not only needs remedial instruction in arithmetic, but also special help in spelling and reading, and in personality adjustment.

RECOMMENDATIONS. An effort should probably be made to help Henry finish his high-school course. He must, however, have a drastically modified program. It would be extremely undesirable for him to repeat algebra or to enroll in a geometry course. He is not ready for such work. He needs instead a most carefully planned program of remedial work in the fundamental processes of arithmetic. If no class is available for this purpose, he should be given individual tutoring by a person especially qualified for such work. Henry has sufficient mental ability to learn all the basic facts and processes of arithmetic. His experiences with arithmetic, however, have been very unpleasant over a period of years. Because of this fact, the greatest skill will be required to properly motivate the work. If this can be done, however, there is every reason to expect that Henry might improve as much as three grades in arithmetic ability during the course of a year.

If he is to take a course in English during the ensuing year, it should be geared to his particular needs and abilities. Major attention might well be given to improving his reading and spelling skills. If this is done, great care must be taken to protect him from being embarrassed or stigmatized in any way.

If courses in art or design are available, he should enroll in them. He might also take an additional course in industrial arts. It is of the greatest importance that Henry receive some success experience during his remaining two years of high school. Courses should be avoided which are likely to make this impossible.

Following graduation from high school, or earlier if the above conditions cannot be met, Henry might be encouraged to enroll in some art school or school of design. There are indications that he would welcome such an opportunity, and that he might achieve success in this work.

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Chapter 14

Preparing for Remedial Teaching

What type of experience and training should a teacher have before attempting to deal with individuals or groups who are in need of remedial treatment?

McCallister has answered this question in the following words: "The person selected for remedial and corrective teaching should be either specifically trained for it or should be a capable student with a disposition to study his job. If the remedial teacher is not specifically trained, he should have sufficient time at his disposal to become thoroughly acquainted with the literature on the subject and to experiment with techniques of diagnosis and instructional procedures."[1] A similar point of view has been expressed by Thompson who states that the "teacher should be trained in remedial methods as well as subject methods. If remedial methods classes are not available, teachers should spend some time in personal preparation by the study of professional books on remedial methods."[2]

Any competent teacher who has a sympathetic attitude towards pupils and who carefully studies their weaknesses and problems can make some contribution to the remedial program of a school. For

[1] James M. McCallister, *Remedial and Corrective Instruction in Reading*, New York, D. Appleton-Century Company, Inc., 1936, p. 278.

[2] Ronald B. Thompson, *The Administration of a Program of Diagnosis and Remedial Instruction in Arithmetic, Reading, and Language Usage in the Secondary School*, Doctor's Thesis, University of Nebraska, Lincoln, Nebraska, June, 1940, p. 67.

after all, remedial teaching is just good teaching. It is taking the pupil where he is and leading him on to higher levels of accomplishment and adjustment in the areas where he is particularly deficient. However, skill in diagnosing difficulties and in supplying remedies can be greatly increased by the careful study of the literature on remedial methods and by pursuing certain basic college and university courses in education and psychology. The teacher who is interested in developing greater skill in directing remedial work can also gain much from attending special sections devoted to this problem at teachers' institutes and professional meetings, and by visiting schools which have developed outstanding remedial programs.

The present book has been specifically written to acquaint teachers and administrators with the techniques, procedures, and plans for successfully carrying forward the necessary remedial programs of their schools. The references found at the ends of the chapters furnish an abundance of excellent supplementary reading material. The teacher who would attain competence in this field should be familiar with much of this.

A number of colleges and universities offer courses which are particularly valuable for persons training for positions in remedial teaching. Many of these can be taken during the summer session or by extension. Among the courses most significant for remedial teachers are specific courses in diagnostic and remedial teaching, mental and educational tests, individual mental testing, educational statistics, and clinical psychology. Some of the important outcomes to be derived from the study of these courses are briefly sketched in the next few paragraphs.

Specific Courses in Diagnostic and Remedial Teaching. Although titles vary from institution to institution, the following are typical of the offerings in this area: Psychology of Reading, Reading Instruction and Diagnosis, Diagnosis and Remedial Instruction in Spelling, Language, and Arithmetic, and Improvement of Reading in High School and College. At the University of Illinois, the courses offered in this field are: Remedial Reading in the Elementary School, Remedial Reading in the High School, and Diagnostic and Remedial Programs

of the School. This latter course is for both elementary and high-school teachers and covers diagnostic tests, remedial techniques and materials, and the use of such instruments as the Ophthalmograph, and the Reading Accelerator. Attention is given to programs which the teacher can put into effect in his school or class. During the course, opportunity is provided for the class members to diagnose and work with some pupil who is retarded in reading or in one of the other tool subjects.

Mental and Educational Tests. Courses with this title generally make a survey of tests of achievement in school subjects, intelligence tests, and personality tests. The construction of the tests and their application to practical school problems are frequently considered as well as are problems relating to scores and norms. Among the useful textbooks in the field are L. J. Cronbach, *Essentials of Psychological Testing,* Harper and Brothers, Publishers; Anne Anastasi, *Psychological Testing,* The Macmillan Company; and H. H. Remmers and N. L. Gage, *Educational Measurement and Evaluation,* Harper and Brothers, Publishers.

Individual Mental Testing. Courses of this nature provide intensive practice in the use of such tests as the *Revised Stanford-Binet Scale,* the *Pintner-Paterson Performance Tests,* and the *Arthur Point Scale of Performance Tests.* Of the available tests of mental ability, the *Revised Stanford-Binet Scale* is probably the most useful in connection with diagnostic and remedial work. Teachers who wish to master the technique of administering it should either enroll in a course in individual mental testing or diligently study *Measuring Intelligence* by Terman and Merrill, Houghton Mifflin Company. In order to understand the book *Measuring Intelligence,* and to master the technique there described, it will be necessary for the teacher to have at hand one of the boxes of test materials and some copies of the appropriate Record Booklet.[3]

Educational Statistics. The teacher who would be thoroughly prepared for work in remedial teaching should be familiar with a wide

[3] All materials needed for administering the *Revised Stanford-Binet Scale* are handled by Houghton Mifflin Company, Boston.

variety of statistical concepts. He should know, for example, the meaning of such terms as "mean," "median," "percentile score," "standard score," "probable error of an obtained score," "reliability of a test," "validity of a test," and "coefficient of correlation." A knowledge of these and many other statistical terms is essential for accurately interpreting and using test results for diagnostic purposes. Two excellent textbooks in this field are H. E. Garrett, *Statistics in Psychology and Education,* Longmans, Green and Company, and E. F. Lindquist, *A First Course in Statistics,* Houghton Mifflin Company.

Clinical Psychology. Among the topics often covered in a course in clinical psychology are the following: diagnostic methods, mental deficiency, school retardation, specific disabilities in school subjects, conduct problems, juvenile delinquency, speech defects, personality problems, and sensory defects. Such material as this can be most useful to the teacher who would work with remedial cases. Provision is generally made in this course for the student to carry through an individual case study. Two of the best textbooks are C. M. Louttit, *Clinical Psychology of Children's Behavior Problems,* Harper and Brothers, Publishers; and L. A. Pennington and Irwin A. Berg, *An Introduction to Clinical Psychology,* The Ronald Press Company.

Other Courses. Besides those that have been described, there are a number of other college and university courses which can contribute to the effective preparation of the remedial teacher. These include such courses as abnormal psychology, speech correction, mental hygiene, and the psychology of exceptional children.

It would obviously be desirable for the remedial teacher to take some work in psychiatry and medicine, but in few cases will this be possible. When pupils are encountered who need psychiatric or medical attention, the teacher should enlist the help of specialists in these fields.

The typical teacher who directs remedial work in our schools is not a highly trained specialist in psychology. He is usually a very successful teacher of one of the elementary-school grades or a teacher of one of the regular school subjects in the high school who has taken an

interest in developing his competence in the remedial teaching field. Through the reading of appropriate books and journal articles and the attending of one or two summer-school courses on remedial teaching, he has prepared himself for his job. Intelligent teachers with no more preparation than this can do much good and should not hesitate to carry forward the programs they have inaugurated. This is especially true in those instances where the teacher realizes his limitations and does not attempt to make diagnoses or recommendations in areas where he is inadequately trained. It goes without saying, however, that the more thorough and complete the program of preparation, the more successful and satisfying will be the outcomes of the teacher's work.

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